THE FARMERS' CABINET,

AND

AMERICAN HERD-BOOK,

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC AFFAIRS.

"The Productions of the Earth will always be in proportion to the culture bestowed upon it."

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Guano.

MANY inquiries have been made of us during the past spring, in relation to the celebrated Peruvian manure, called Guano. It gives us much pleasure to throw before our readers the following article from a late number of the British Farmer's Magazine, published in London. We think it will be read with a good deal of interest. In the purchase of manures for enriching his lands, it is an important object with the farmer—particularly with him who has them to haul a considerable distance—to obtain those which have the most strength in the least compass, and thus diminish the heavy expenses of transportation. The Guano, it would appear, possesses to a great extent, this advantage. We have not heard that any has been brought to this city. If, however, the accounts of its usefulness continue favourable, and the article can be obtained from its native location, the enterprize of our merchants will not fail soon to place it on our wharves.

ED.

IN your quarterly number for July, last year, pages 176 to 193, I presented your readers with the account of an interesting meeting of the County of Kerry Agricultural Society, from which arose the publication in this work of the best concentrated documents, analyses and results, then known as to the new (but yet old) and celebrated natural production, used as, and *called* manure; the Spanish name for *manure* being *Huano.* This article has been used for ages by the ancient and present Peruvian agriculturists, and only imported into England the last eighteen months, during which time, 3000 tons have been sold to manure the worn-out soils of England. This quantity has covered upwards of 40,000 statute acres. The north country graziers are putting 50 to 100 tons on one farm. They declare it saves them five pounds per acre, yielding them 20 to 30 per cent. larger crops, and bringing them to maturity much earlier—so very desirable to the British farmer, in our damp and humid climate. Guano sold at 22s. to 28s. per cwt. last year; it is now only 14s. to 15s. per cwt., and I believe even 12s. to 13s. per cwt. for large parcels, allowing a profit to the dealers. It is the most permanent fertilizer ever discovered; is chiefly aromatic; but the old deposits or strata, where found, are not so, the ammoniacal properties being concentrated and concreted. It remains for a long period of time in the land, and is not washed out by the rains; neither is it volatile, so as to rise into the air, as Professor Johnston, of Durham, states in his lectures on Agricultural Chemistry, consequently exercising a beneficial influence on the growing crops periodically, being a compound of nature consisting of the greatest variety of phosphates, muriates, urates, phosphoric, lythic, acids, organic matters, &c., of any article found in a natural state, all contributing food annually to the plants, as required by them.

From the numerous chemical ingredients composing the guano, no doubt it is of volcanic origin, in part; and as vegetation can only draw from the soil sufficient food in one season for its support, no more and no less, for its due development, growth and maturity, there is, of necessity, a supply of guano left in the soil, constantly drawing down from the atmosphere fresh ammoniacal life by the rains, which the "guanoical" particles keep in the soil, by means of their numerous inorganic matters, concretes, acids, &c., until it is wanted by the succeeding year's crop. So that one dressing of two or three cwt. per acre, (costing £1 10s. to £2,) will last many years, without further manure of any sort, by digging the soil over with a fork; and the agricultural professors, Pusey, of Oxford, and Johnston, of Durham, recommended the guano manure to the English farmer, at 20s. per cwt., as being a permanent and excellent nourisher of the soil. At times it is worth 12s. per cwt. in Peru. About fifty ship loads have arrived in England, paying as high as even £6 per ton, freight; and the total quantity imported to the present time, is about 12 to 15,000 tons; 3000 tons being consumed during the last

eighteen months. The quantity left for next season, would not cover more than 100,000 acres; and I hear little more is coming, the loss being heavy. The farmer can scarcely expect it at a lower rate than it is at present; and if the London speculators get hold of the present stock—and we understand they are in treaty for it all—they may monopolize guano, and raise the price to double its present rate, as they did nitrate of soda three years back; when it may be adulterated, as nitrate of soda was at that time.

I would recommend every farmer to get it through a respectable agent in Liverpool, who will see that he gets the genuine guano, direct from the Queen's bonded stores, as imported from Peru; then he will have no fear of his crops failing, if properly put into the soil.

Guano is well suited to the humid climate of Great Britain, and especially Ireland, as by its peculiar chemical and attractive ammoniacal concretes and properties, it feeds the growing plants faster, which will enable the British farmer to get in his crops earlier; thus securing a longer period and many more chances of fair weather to get in his produce from the ground. At all events, it is well worthy of further and extensive use. Farmers should not be so timid. A few pounds would secure acres of large and good crops. Guano is considered, by all the accounts I have heard or read, as a treasure in Peru, and one of the valuable gifts of Heaven, that enables them to grow food for man and beast, from the barren sea-side, up to the rocky rude mountains, five, ten, twelve, and even 15,000 feet above the level of the sea. Without this guano, the Peruvians could not have raised crops to feed 15,000,000 of people that once inhabited Chili, Peru, &c. No doubt it must be one of the treasures of Peru, we say again, when the agriculturists there are complaining to the Peruvian government, and protesting against its exportation, for fear they should be short of a supply. The English, they state, have taken all our gold, and now they are taking all our guano also. However, the Peruvian government do not let it go for nothing; they have obtained £200,000 for allowing France and England to take it *for one year* only from their country. I understand the Belgian, Dutch, German, and French agriculturists are using the guano manure formation, as well as our own farmers in England, Ireland, Scotland and Wales, and that considerable shipments have been made to the West Indies, as well as the East Indies and St. Helena.

Guano is the best compound (a dry *compost*) fertilizer and nourisher of soils yet discovered, and can only be drawn out by the growing crops, in a course of years. In Peru, they have in the mountains, almost perpetual humidity, rains and dews near nine months in the year, and the sun only shines at intervals.

It was stated in July last, there were 3000 acres covering weekly, and that 1½ to 2 cwt. per acre, was the only outlay necessary; the guano to be well mixed with clean yellow sea-sand, ashes, old mould, charcoal, night-soil, scrapings of the roads, and common deal, or any kind of saw-dust; four parts of any of these to one part of guano, to be well mixed, and the guano first to be finely powdered, then to be thrown on the land, just before showers commence, broad-cast. In high districts, or dry weather, it is highly desirable, when convenient, and in all cases, to irrigate the land with a water-cart, that the guano may quickly get to the rootlets of the plants, as it can scarcely be put on the land in too small a quantity. In Peru they put it round the plant with finger and thumb, like pinches of snuff (guano is very like snuff,) and water it afterwards. In some cases it would be best to put it on in a state of solution; 12 gallons of water to 4 lbs. of guano, for hot and green-house plants, fruit trees, &c.

Naturalists disagree as to the origin of the guano formation. This is of little moment. In some parts it is like the sand of the desert, fine as the finest powder; in other islands, hard as the solid rock, 20, 30, and 40 feet deep. In the soft portion, all sorts of animals burrow in it like rabbits, thus living and dying in the guano. It is the best compound in nature, ready for the English farmer. Surely if the British farmer labour and toil to make his compost from his own stable and farm-yard manure, he would prefer to give the finish and polish to the earth, to induce dame *nature* to give her increase in due season, rather than run the precarious risk of his own compost failing, either from its being washed out of the soil by the rains, or not being properly compounded for the crops he may require.

The results from guano are highly satisfactory for all crops. A more or less quantity may be put on any field, according to the kind of produce required, the soil to be manured, and the condition of the land. And every farmer should study these points: he should read works on Agricultural Chemistry, Geology, Meteorology, Electricity, &c., as all the actions of nature, with the weather, I need not tell the scientific farmer, bear upon his success as an agriculturist. And if he will carry his business to perfection, he should consult his neighbour and

medical man, on all intricate subjects, as he would in case of a disease amongst his cattle and stock, or if one was out of health in his own family.

Suggestions for comparative experiments with Guano and other manures.

In addition to the foregoing, we take the following from the Appendix to Johnston's Agricultural Chemistry and Geology. It will be observed, that while the Farmer's Magazine ascribes to guano a *volcanic* origin, Professor Johnston speaks of it as an *animal* production. The farmer will leave this point for others to settle, while he is careful to look around, and see if his individual interest may be promoted by the use of this extraordinary article, when it shall come within his reach.—Ed.

Guano is the name given in South America to the dung of the sea-fowl, which hover in countless flocks along the shores of the Pacific, and which, from time immemorial, have deposited their droppings on the rocks and the islands which are met with along the coast of Peru.

Besides the fresh white guano which is deposited year by year in these localities, there exist, in some spots, large accumulations more or less buried beneath a covering of drifted sand, which have been thus buried and partially preserved from an unknown antiquity. This ancient guano is of a brown colour, more or less dark, and forms layers or heaps of limited extent, but which are said sometimes to exceed even 60 feet in thickness.

In the time of the Incas, this substance was known and highly valued as a manure,—the country along the coast, for a length of 200 leagues, was entirely manured by it,—the islands on which it was formed were carefully watched and preserved,—and it was declared to be a capital offence to kill any of the sea-fowl by which it was deposited. Ever since that time it has been more or less employed for the same purpose, and much of the culture now practised on this thinly-peopled coast, is entirely dependent for its success, if not for its existence, on the stores of manure which the sea-fowl thus place within reach of those parts of the country which are susceptible of cultivation.

In modern times, however, the access of foreign shipping, and the want of careful protection, have driven away many of the sea-fowl, and lessened to a very great degree, the production of the recent guano. Thus the country is more dependent than in former times, on the more ancient deposits, which are now assiduously sought for, and when discovered beneath the sand, are carefully excavated and transported to the sea-ports for sale.

The dung of birds of all kinds, when exposed to the air, gradually undergoes decomposition, gives off ammonia, and acquires a brown colour. As this ammonia is one of the most fertilizing substances it contains, it will be readily understood that the old brown guano is much less valuable as a manure, than that which is recent and white; hence the care of the ancient Peruvians in collecting the fresh, and their comparative neglect of the ancient guano.

When the brown guano is put into water, a large quantity of it—sometimes 70 per cent. of the whole—is dissolved. Hence it is, because the climate of Peru is so dry and arid, that in the plains rain scarcely ever falls, that the guano can accumulate as it is found to do. North and south of this line of coast, where rains are less unfrequent, such accumulations are not met with, though the birds appear equally plentiful, and it may be safely stated that, had the climate of Peru been like that of England, the rains would have washed the guano from the rocks almost as rapidly as it was deposited.

Of the brown guano, several cargoes have lately been brought to England by an enterprising merchant in Liverpool, and it has been deservedly recommended to the attention of British agriculturists. It has already been tried upon various crops, both of hay and corn, upon turnips also, and upon hops, and there can be no doubt whatever, that in our climate, as well as in that of Peru, it is fitted to promote vegetation to a very remarkable degree.

This brown guano varies much in quality, according probably to the degree of exposure to the air to which it has been subjected, or to its position in the deposit from which it has been dug. Two different portions, taken at random from the same box, gave me the following very different results:

1°.—Water, salts of ammonia, and organic matter, expelled by a red heat. - -		23.5 per ct.
Sulphate of soda, - - - - -		1.8 "
Common salt, with a little phosphate of soda,		30.3 "
Phosphate of lime, with a little phosphate of magnesia and carbonate of lime,		44.4 "
		100*
2°.—Ammonia. - - -	= 7.0	59.3 per ct.
Uric acid, - - -	= 0.8	
Water, carbonic and oxalic acids, &c., expelled by a red heat, - - -	= 51.5	
Common salt, with a little sulphate and phosphate of soda, - -		11.4 "
Phosphate of lime, &c. - -		29.3 "
		100

*The first contained also 8 per cent. and the second 1¼ per cent. of sand, which has been left out of the true composition of the guano considered as free from sand.

According to M. Winterfeldt, this brown guano is sold at the ports near which it is obtained, at about three shillings a cwt. It might, therefore, if this be correct, be imported into this country, and sold at less than 10 shillings per cent. The price at present asked, however, is 25 shillings per cent., a cost at which it is doubtful if the English agriculturist can afford to use it.

In any case, it seems improbable that the guano can continue to be imported into this country for any length of time. It is absolutely necessary to the cultivation of the land in Peru,—and it is also diminishing in quantity,—the first settled government, therefore, which is formed in that country, must prohibit the further exportation of a substance so important to the national interests. It is a matter not unworthy of the attention of chemists, therefore, to consider whether a mixture similar to the guano, and of equal efficacy, cannot be formed by art—not only at a cost so reasonable as at once to make the British farmer independent of the importer,—but also in such abundance as at the same time to place so valuable a manure within the reach of all.

The following mixture contains the several ingredients found in guano, in nearly the average proportions; and I believe it is likely to be at least as efficacious as the natural guano, for all the crops to which the latter has hitherto been applied in this country:—

	£.	s.	d.
315 lbs. (7 bushels) of bone-dust, at 2s. 9d. per bushel.	0	19	0
100 lbs. of sulphate of ammonia,* containing 35 lbs. of ammonia, at 20s. a cwt.	0	18	0
5 lbs. of pearl-ash.	0	1	0
100 lbs. of common salt.	0	2	0
11 lbs. of dry sulphate of soda.	0	1	0
531 lbs. of *artificial guano* cost	2	1	0

The quantity here indicated may be intimately mixed with 100 lbs. of chalk, and will be fully equal in efficacy, I believe, to 4 cwt. of guano, now selling at £5.

For the Farmers' Cabinet.

Forms of Cattle.

Messrs. Editors,—Your correspondent, W. P. H., on page 260, of the present vol. of the Cabinet, asks if some of your readers cannot furnish the most approved anatomical forms of cattle, particularly the milch cow?

Some years ago, I wrote for "The Reporter," a piece on this subject, which was republished in "The Franklin Farmer," of Feb. 1838. As this piece appears to answer your correspondent's request, I shall transcribe a part of it for that purpose, and make such additional remarks as may be suggested. In making the following observations, I acknowledge my obligations to many writers; but none to the gentleman in Indiana, who a few years ago furnished the piece, as published in "The Franklin Farmer," to an agricultural paper of that State, as his own production.

The two principal objects in raising cattle, appear to be *beef* and *milk*. And as certain forms are found to possess particular qualities, I shall proceed to give those forms, and the desirable qualities generally connected with them.

The head should be small—the muzzle fine—the countenance calm—horns fine—neck light, particularly where it joins the head;—breast wide, and projecting well before the legs—shoulders moderately broad at top, and the points well in, so as to leave no hollows behind them when the animal is moderately fat;—the girth behind the shoulders should be deep, so that if the carcass should be cut across here, the section would be an *ellipse*, blunt at both ends;—back straight, wide and flat;—ribs broad, and the space between them and the hips small;—flank full and heavy—belly well kept in—hips globular, wide across and on a level with the back—twist wide, and the seam in the middle of it well filled—thigh straight, tapering well down to the hock;—the legs straight, short jointed, clean, fine boned, and standing wide apart—tail broad towards the top, tapering down small towards the bottom—body long, and joined smoothly to the quarters before and behind—skin soft and elastic—veins large.

I shall now proceed to show the advantages of the above form. The reason why the head should be small and muzzle fine,—a small head facilitates birth; and as the head is composed mostly of bone, it shows fineness of bone, the advantage of which is fully appreciated by the grazier, who has learned that no animal fattens kindly that lacks them. Calmness of countenance also denotes a disposition to be contented, and is generally possessed by a gentle milch cow, and also denotes an animal that will fatten easily. The light neck will be very advantageous to the butcher, who will get much less coarse meat in such; short neck generally denotes a thrifty, hardy animal. A long, or ewe-neck,—that is, one falling off from the top of shoulders—denotes a tender constitution.

The wide breast and deep body, give greater room for the lungs, the importance

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* Sulphate of ammonia is now manufactured largely at Glasgow, and may be had for less than 20 shillings a cwt.

of which will be seen presently. A straight back is indicative of strength; a weak animal is generally hump-backed; poor keeping will produce these deficiencies in a calf that was at first well formed. The straight back also, denotes aptitude to fatten. Much depends upon the room the lungs have; no animal can be a good one, whose lungs occupy a small space; and as the lungs occupy all the space inside the ribs, so it is important that this space should be large. For this reason, the ribs should spread wide, be deep, and extend well back to the hips. The full, heavy flank of the cow, is a most certain indication of a good milker; this, connected with *large veins*, particularly those on the side of the belly, generally called the *milk veins*, is a certain indication of a good milch cow. The milk is formed from that portion of blood that circulates on the external part of the cow; and as large veins denote a large circulation, so it is indicative of a good milker. The bull with a deep flank, generally produces good milk stock. The belly being nearly straight, shows that the plates of which it is composed are thick and strong;—when the plates are thin, the belly sinks from the weight of its contents. Thick plates are of great advantage to the butcher, when the animal is killed, as it adds much to the weight of meat. Globular hips hold much meat, and it is much easier put upon them, than on those that are sharp. Wide hips give a broader loin and more capacity to the pelvis, which is of much importance in the cow, giving the calf more room. The hind-quarter that is long from the hip to the rump, and straight with the back, will weigh very heavy; and for the same reason, the twist (that is the space between the the thighs) should be wide and well filled up, which gives great weight to the upper part of the thigh. Straight legs are now the fashion, and are said to be stronger than crooked ones. Clean legs, small bones, tapering tails, show fine bones—and such animals are easily kept, and when not in milk, fatten easily. A short legged animal also, is more easily kept and fattened, than long legged ones. When the brisket and twist are large, the legs will be wide apart.

I somewhat doubt the propriety of insisting upon a long body; but a good animal with a long body, will weigh much heavier than one with a short body; but it is much easier to breed *good animals with short bodies.* There is a continual tendency in the produce of the long bodied animal to be narrow in the breast, which is not the case with the shorter animal. And as a general rule, the shorter animal fattens much more easily. However, if the width of the carcass can be kept up, a long body is to be preferred. Round bodies were formerly the fashion, but the deep body is now thought to be decidedly best. The limbs do not join to the body of the round animal, as smoothly as to the oval—there generally being a hollow behind the shoulder;—neither is the carcass as heavy. Round animals too, generally carry the fat upon the surface, and do not mix it as well with the flesh. A soft and elastic skin, is one of the most certain tests of an animal that will fatten kindly. An animal may have the finest form and the most perfect symmetry, yet if he lacks the proper "*feeling*," he will not fatten kindly. On the other hand, if he has the proper "*feeling*," he may lack much in form, and still will fatten kindly. By "*feeling*," is meant certain sensations produced by "*touching or handling*" an animal; the easiest learned of which, is the softness and elasticity of the skin. The elasticity is occasioned by the quantity of cellular substance (that is, little elastic bags to hold fat) that is placed between the skin and the flesh. As this cellular substance can be discovered by an experienced "*handler*," even down among the muscles, (lean flesh,) so he can tell whether an animal will fatten in such parts, and whether the fat will be well mixed with the lean. But this knowledge is not to be obtained without much practice.

I have above described the most approved form for cattle, and have given the reasons why this shape is preferred. There is another reason not yet mentioned. When the cow has ceased to give milk, and has been fattened, it will be found that she will not only weigh heavy, but will carry her weight upon the most valuable parts. For it is known, that the butcher sells some pieces of beef for twice as much as others. And she can be fattened upon half the food necessary to fatten an inferior animal.

I have said nothing about the shape of the *udder* and *teats*, as these can be best judged of when the cow is in milk; and then the *best proof is milking her.* Still it may be serviceable to say, the udder should rather be round than long; should lay up close to the body; should spread forward—teats about equally distant, of moderate size, say about two inches in diameter, next the udder, and taper down to the point, which should be blunt rather than sharp: they should be from four to six inches long. The udder, when empty, should be greatly reduced in size, and the skin should contract so as not to leave it flabby;—it should not feel at this time hard and knotty; as this would indicate

that it might become thickened and scirrhous, so as to make the cow liable to inflammations, and probably loss of some of the quarters. Samuel D. Martin.

Colbyville, Kentucky, April 3d, 1843.

Mechanics.

Why are wheels generally made of a dished form—that is, inclining outwards?

Because they thus acquire astonishing strength, indeed that of the arch, as contrasted with the flat or upright wheel; the dished form is further useful in this, that when the carriage is on an inclined road, and more of the weight consequently falls upon the wheel of the lower side, the inferior spokes of the wheels become nearly perpendicular, and therefore support the increased weight more safely. The disadvantage of these wheels, however, is, the inclining wheel naturally describing a curved path, the horses, in drawing straight forward, have to overcome this deviating tendency in all the wheels.

Why are the fore-wheels of carriages smaller than the hind-wheels?

Because they facilitate the turning of the carriage. The advantage of the wheel is proportioned to the magnitude; the smaller wheel having to raise a steeper curve. It is not true, however, according to the popular prejudice, that the large hind-wheels of coaches and wagons help to push on the little wheels before them.

From these causes, continues the same ingenious writer, "the difference in performing the same journey of a mile, by a sledge and a wheel-carriage is, that the former rubs over every roughness in the road, and is jolted by every irregularity; the rubbing part of the latter, the axle, glides very slowly over about 30 yards of a smooth oiled surface, in a gently waving line. It is ascertained that the resistance is thus reduced to 1–100 of what it is for a sledge."

Why do springs not only render carriages more easy vehicles on rough roads, but much lessen the pull to the horses?

Because where there is no spring, the whole load must rise with every rising of the road, and must sink with every depression, and the depression costs as much as the rising, because the wheel must be drawn up again from the bottom of it; but in a spring carriage, moving rapidly along, only the parts below the springs are moved, in correspondence with the irregularities, while all above, by the inertia of the matter, have a soft and steady advance.

Again, springs of carriages convert all percussion into mere increase of pressure: that is to say, the collision of two hard bodies is changed by the interposition of one that is elastic, into a mere accession of weight. It is probable, that under certain modifications, springs may be applied with great advantage to the heaviest wagons.

In surmounting obstacles, a carriage with its load being lifted over, the springs allow the wheels to rise, while the weights suspended on them, are scarcely moved from their horizontal level.

Why are "under-springs" so advantageous in very modern carriages?

Because they insulate from the effects of the shocks, all the parts, excepting the wheels and axletrees themselves. When only the body of the carriage is on springs, the horses have still to rattle the heavy frame-work below it, over all irregularities.

Why should a road up a very steep hill, be made to wind or zig-zag all the way?

Because, to reach a given height, the ease of the pull is greater, exactly as the road is made longer.

Why is it important to make roads as level as possible?

Because, a horse drawing on a road where there is a rise of one foot in twenty, is really lifting one-twentieth of the load, as well as overcoming the friction, and other resistance of the carriage.—*Arnott.*

Effects of Salt upon Celery.—Some time ago, we pointed out the beneficial effects of salt in growing asparagus. There is another plant cultivated in gardens, which would be greatly benefited if a little more salt was added to its food—for I believe the manure which it commonly receives, is as wairish to its taste, as brose without salt to a Scotchman. Celery is the plant I mean; I recollect gathering it in a wild state, some years ago, on the north side of the Frith of Forth, in situations that would be watered by spring tides—and, I believe that it is commonly found, both in England and Scotland, in ditches near the sea. This season I gave a considerable quantity of salt to a row of celery, by putting it between the plants some time after they were planted. I then watered them freely, which carried the saline particles down to the roots. This appears to have done the plants much good, for they grew remarkably well afterwards. From the Report of the Covent Garden market, some time ago, it appears that celery this season, has been rather shorter than usual. Some of my plants to which salt was applied, measured, by the middle of September, four feet in height, 30 inches of which were well blanched.—*Gardener's Chronicle.*

Hints for making a Manure.

BY AN AMATEUR FARMER.

We find the following *practical* matter-of-fact article in the Farmer's Register, which credits it to the London Farmer's Magazine.

"The following essay, or rather, we should say, description of a manure, obtained the prize at the last meeting of the Holywood Agricultural Society. As it may be of advantage to farmers and agriculturists generally, we give it the benefit of our circulation."

"*To the President, &c., of the Holywood Agricultural Society.*

"Gentlemen,—Having observed in your published list of premiums for this year, which, by some means fell into my hands, one offered by Mr. Harlin, for the best essay on, or description of, a manure, or manures, which will make the best substitute for that usually prepared in the farm-yard, procured from towns, I thought I would take a chance for it, and resolved, as I have many opportunities of seeing the crops growing, and of conversing with those who grow them, to cast my eyes about, and seek for information on the different manures by which they are produced. I at last fixed upon a farmer's field, where a number of persons had their potato crops planted beside each other. A great difference in the several lots was very perceptible, and my first impression naturally was, as the farmer, the owner of the field, had the largest manure-heap, the produce of many cattle, he should have the best crop. On inquiry, however, I found I was mistaken, for one lot, of a person who kept only one pig, and another belonging to a cottager, who kept no pig, were both better than the general crop. Now, said I to myself, I have the secret to make good manure (and, I must confess, my mind turned more strongly on the premium,) if I can only prevail on this cottager, who keeps no pig, to tell me how he makes *his* manure—what *he* carries on, on a small scale, I will conduct on a large one. He appeared quite astonished on my making inquiry on so simple a matter, as he called it, as a cottager's manure-heap, and thought me very ignorant indeed. However, in a very few words, he told me, that he collected all the green weeds he could, scraped the roads, pared off all the green edges, and cleaned out the *water-tables* opposite his own house, and as much further as he could; and, if his landlord would allow him, *scoured* out a ditch, and even picked up quantities of the *red till*, by times. All these he collected into a heap, and he never allowed a drop of suds, dirty water, house-buckets, or any other liquid that could be collected, to be lost; but poured all on the heap of rubbish he had gathered, and, after some time, turned it carefully, and mixed it properly. On inquiry, I found that he did not apply a greater quantity of this manure to produce his crops, than is usually done from the farm-yard; and he assured me, that its good effects remained in the soil and appeared on the future crops. Now I can fancy the learned essayists, who may compete for this premium, in classic order and in modern style, dividing their subject into different heads, and explaining the meaning of terms, in which I will most certainly fall short! O for the pen, or pencil, of a Franklin, a Cobbett, a Doyle, or a Blacker, to paint my subject in its proper colours, which, though not so beautifully blended as those of the rainbow, yet present to the eye of the amateur agriculturist, a pleasing variety of black and green, diversified with orange and yellow! But you must all have heard, that wishing, of all occupations, is the worst. I must, therefore, as this is only intended for a plain, humble, prosy description, trust to my own style to describe the process, and how followed, for two seasons. You must, therefore, for the present, place yourselves, in imagination, beside a large heap of 80 to 100 loads of road scrapings, water-table scourings, weeds, and every kind of refuse that could be scraped together, with several puncheons of suds, and all other sorts of liquid manure which are produced about a farm-house (with some more solid,) discharged into numerous communicating cuts, made over and through the surface of the above described heap, the liquid being always immediately covered over, to prevent evaporation. The cuts must be made in different parts of the surface of the heap, for each successive puncheon of liquid, till all is completely saturated; then an additional layer of earth and other material, and so on, till it is ready for a complete turning. Or, suppose a pit dug in a convenient part of a field, or a tank made near your house, both of which I have tried, with a layer of finely broken earth in the bottom, on which a puncheon of the material before described, has been discharged, the whole properly mixed together with a shovel, the operator standing on the brink of the pit or tank; and afterwards, a thin layer of earth added, to prevent evaporation. In another week, or as often as possible, add another layer of finely broken earth, and another puncheon, mixed and covered over as before directed, till your pit or tank is full, and ready to be cleared out, to give

room for another '*making*.' When the material is thrown out of the pit, it will be always necessary and proper to cover it entirely over with weeds, or some kind of refuse; but the more vegetable matter, the better. This matter, however, is not one for supposition; it has been carried into effect, and could not be kept a secret; for the process drew wondering spectators, from its perfuming the air with that rich odor which would make a knowing agriculturist look six months before him, and say to himself,—This will come to something; if crops don't grow after the application of this manure * * *. I have heard of, and seen essays which would tell you what might be done; but here is a matter on which you may exercise nearly all your senses—you can see it, touch it—most certainly smell it; and, at any stage of the process, you may readily hear it. I will not detain you with the obstacles I had to encounter in carrying that great matter into effect, being laughed at by some, and ridiculed by others. But, before concluding, just observe (that this manure may have fair play,) your ground must be first well drained—different manures are adapted to different soils and different plants—and that a long continuation of the same manure to the same soil is often injudicious. I had almost forgotten to remark, that I have known many farmers to draw manure, at a dear rate, from towns, who were allowing much liquid manure, for want of a very trifling arrangement on their premises, to 'waste its richness on the desert air.' This is a subject which demands your early and attentive consideration; and I would warn you not to be too long about it, as one farmer of this parish has certainly done, who said he had been thinking about making a tank for nine or ten years, but could never get time. If this humble description of manure should happen to obtain the premium, it may be handed to your secretary, who will, if necessary, tell the name of the writer, who has adopted, as his motto,

"Keep your eyes open."

From the Farmer's Register.

Bone Dust.

Sandy-spring, Md., Third mo., 1843.

To the Editor,—In my last I promised to furnish an account of further experiments in the use of bone manure, and have accordingly seated myself to fulfil my promise.

Owing to the tardiness with which the spring opens, an experiment that I have now in progress, of applying it in the fall as a top-dressing for wheat, is not sufficiently developed to warrant any conclusive deductions in its favour; but, from one tried last year, I am inclined to the opinion that it is a most powerful stimulant when applied in the spring. In my wheat ground there was a miserable white flint knoll, upon which the sowing of 20 bushels per acre, failed to more than vegetate the plant; consequently, in the spring it was a perfect eye-sore. I doubled the quantity, making it at the rate of 40 bushels. The wheat soon outstripped that which surrounded it; and it is now better set with clover than any portion of the field. It is my intention to try another experiment of the same kind this spring, although, to insure its permanency, I would prefer sowing it in the fall, and, by a light harrowing, incorporating it with the surface.

At the chemical laboratory in Baltimore, bone dust can be purchased at fifty-two and a half cents a bushel, well secured in two-bushel bags, and weighing 60 pounds to the bushel. It is easy, therefore, to calculate what it will cost on our farms.

It was with grief that a paragraph in a newspaper lately met my eye, announcing the fact, that a large quantity of bone was exported from one of our northern cities to England, where its value is known, one of whose writers, Johnston, in his Agricultural Chemistry, analyzes a ton of dry bones, and gives the following as the result.

"Dry bones contain about two-thirds of their weight of earthy matter, the other third consisting chiefly of animal matter, resembling glue. Thus a ton of bone dust will contain

Animal matter, - - - - - -	746 lbs.
Phosphate of lime, - - -	1245 "
Carbonate of lime, - - -	249 "
	2240 lbs."

And again, "The farmer now rejoices in having in one ton of bone an equivalent to 14 tons of barn-yard manure." While such is their knowledge and belief, need we wonder that our bones serve to enrich a foreign soil? My object, and the only one I have in view, is to urge agriculturists to experiment with this valuable manure, feeling well assured that it will be followed by extensive use, and that ere long, every city and town will have within its limits an establishment for grinding, instead of leaving them to bleach and waste away upon their commons.

Richard T. Bentley.

Take things always by their smooth handle.

Extraordinary sales of Cattle, &c.

The following letter from our fellow townsman, we clip from the New Genessee Farmer.

Mr. Henry Colman,—

Dear Sir,—I am about to fulfil my promise made to you when in this city a few weeks ago, by giving you a statement of some sales made by me, of cattle and sheep. Some of the former were of improved breeds, the latter were of the Leicester or Dishly breed, of which I kept a flock, from 20 to 60 head, for some years previous to my leaving my farm.

In the year 1815, I sold 20 oxen fatted on grass during one season, for $90 per head, making $1,800. The above cattle were raised in the State of New York. In March, 1816, I sold two steers six years old, for 25 cents per pound, net beef. They weighed 1773¾ pounds, and 1653½ pounds, making together 3,427¼ pounds, amounting to $856, 75. They cost me $160. I kept them about seventeen months, during which time I fed them with corn meal mixed with oat meal, and wheat ship-stuff, turnips, &c.,—grass in summer. In the autumn of 1816, I sold 20 oxen at $100 each. These and the others above, were raised in the State of New York—the latter had one summer's feeding on grass, and weighed 1000 pounds each.

The spring of 1817, I sold 10 oxen that I fed during the winter on corn and oat meal, and were in good condition when I purchased them—for $130 each. In December, 1817, I sold 13 cattle to go to the New York market, for $1400. They had been fatted from one to two years, and were raised in Western Virginia.

In April, 1818, I sold four steers for $646, 68. Three of them were raised in Kentucky, and weighed from 13 to 1500 pounds each. About the same time, I sold to the navy agent in Philadelphia, a yoke of oxen for $175. They were the first oxen ever used in that yard. They purchased them at my recommendation, and have never used a horse there since.

March, 1819, I sold a five year old steer, for $336. I had fed him about eighteen months, he weighed near 1400 pounds, net beef. This steer was raised by a neighbour of mine, and was remarkable for his beauty of form and fatting qualities; I paid for him $160—he was of the native breed. At the time I left my farm, I had made some progress in Short-horned blood, and have sold half-breed heifers, as high as $100.

I had, during seven years previous to 1824, sold many of my Leicester sheep at high prices to breeders—as high as 30 to 75 dollars each—to butchers, from 10 to 27 dollars each. My sheep always afforded me great pleasure and profit; their docile habits and beautiful forms were always interesting.

During the time of the above transactions, I was largely engaged in the grazing business, on the fine meadow lands on the river Delaware, south of this city, for which I paid from seven to ten dollars per acre, rent. I had also high land, where I raised and kept my stock during winter.

I have thus given you a hasty sketch of some of my operations, merely for your own satisfaction; and if productive of any gratification to you, I shall be quite satisfied.

I hope to hear from you before you leave for England.—

And am most respectfully yours,

Aaron Clement.

Philad., March 2, 1843.

Pruning fruit trees.—It will be found upon experiment, that a wound made on a tree in March or April, will look black as soon as the sap begins to flow, and that the sap will ooze out until the leaves have put out so as to receive it; while a wound made in June, will remain white, and immediately commence healing. The wound of a tree that has been broken by being loaded with fruit, or otherwise, while the tree is green with foliage, will look white and the wood remain sound; while one broken in the winter, by snow, or from other cause, will look black and incline to decay.

It has been my humble lot to spend most of my time in the spring and fore part of the summer, in engrafting and pruning fruit trees, and my experience goes to prove that the best time for pruning, is when the leaves are full grown, and the tree is in a vigorous and growing state. For at this season, when the sap has been spent in the foliage, and the pores of the wood are filled, so that when the limb is taken off, the sun and warm weather will dry the end of the limb and close the pores of the wood against the weather, the sap will keep the limb alive to the very end, and the healing will be perceived immediately.—*Boston Cultivator.*

Ploughing in green crops.—Living plants contain in their substance not only all they have drawn up from the soil, but also a great part of what they have drawn down from the air. Plough in these living plants, and you necessarily add to the soil more than was taken from it—in other words, you make it richer in *organic* matter. Repeat the process with a second crop, and it becomes richer still—and it would be difficult to define the limit beyond which the process could no further be carried.—*Johnston's Lectures on Agricultural Chemistry.*

Husbandry.

By Dr. Hirzel.

"The pleasure arising from the study of husbandry, is now confirmed in me, since it is become a part of my duty to examine the nature of soils; and the appointment of first physician to the republic of Zurich, making it encumbent on me to watch over the health of her citizens, I am obliged to pay particular attention to the different modes of living among the different ranks of people—the consideration of a remedy for epidemical distempers among cattle also, being strongly recommended to my care, some knowledge of agriculture seemed a necessary preliminary to such an office, as it almost always happens that the *origin of these epidemical distempers springs from the meadow and pasture land;* the rules inserted in our memorials for preventing epidemical diseases in cattle, by *correcting the insalubrity of the soil*, furnishing proof of what I advance. This double motive inspired me with an ardent desire of exploring and explaining, with all possible precision, the present state of rural economy practised amongst us, with its imperfections and capability of improvement. And I must acknowledge, that the methods hitherto pursued, do not appear to me the best calculated to answer the purpose in farming. An eager pursuit after new experiments, prevails amongst those whose knowledge of the ancient husbandry is superficial and incompetent, and some there are, who flatter themselves with being considered the greatest improvers of agriculture, from the introduction of some unknown species of grain or artificial grass; while others expect fame from the invention of some new implement or different mode of tillage; while a third sort hope to acquire it by untried objects of attention. Now, in opposition to all this, I apprehend the first principle we ought to set out upon is, a perfect knowledge of the nature of soils, with a competent insight into such methods of cultivation as are practised by the most intelligent and industrious farmers, by which they often double their produce, when compared with their nearest neighbours. What remains therefore, is, to procure a free communication of these methods, and to endeavour by all possible means, to excite a laudable emulation amongst farmers: this, I should think the most eligible plan for restoring agriculture amongst us: the most circumscribed genius may follow practical rules unmolested by any obstacle, whilst new inventions are attended with a crowd of difficulties. But I have no desire to depreciate the merit of those generous citizens, who have appropriated a considerable part of the superfluity of their income to the procuring of newly invented implements of husbandry, and several sorts of grain and grass seeds, trees and shrubs unknown in our climate, of which they have made trial on their own estates, before they were rendered public; these spirited attentions, of whose good effects we have already reaped much advantage, undoubtedly merit our commendation and acknowledgment; yet this plan for the improvement of agriculture, appears more uncertain and slower in its progress, than that which I have ventured to recommend; it is more *uncertain*, because men are too apt to embellish a favourite theory in their writings: the objects of which they are fond, are often extolled beyond reality, and they allow too much to fancy in their descriptions. It must be a long course of experiments, which alone can determine whether this or that grain or grass, may be naturalized with real benefit to a country, or whether the adoption of a new system of husbandry, with its attendant expense, be an advantageous compensation for abandoning an old one. Experiments often succeed to admiration, in a well cultivated garden, but when extended, the utility is found absorbed in the expense of labour. I have also observed that new inventions are always slow in their effects, and can be of no real benefit until they become habitual or general: it is a work of time to convince a cultivator that the alterations you propose are eligible, and to persuade him to renounce his prejudices, and change the habits received from his forefathers, for new ones."

Improvement in the construction of ploughs.—A Scotch writer observes: "twenty-five years ago, it was common to see four horses and four oxen, dragging and staggering before a large heavy plough, carrying a very small furrow, at the rate of about a mile an hour, whilst the driver—the only active member of the cavalcade—was obliged to traverse three miles to their one, to prevent them from falling asleep! Now, we see no plough with more than a pair of horses, carrying a furrow twice the weight, and going with apparent ease three times faster; while the horses are better bred, in better order, and maintained at less expense." Horses, in this part of the country—West Lothian—have now quite superseded oxen in husbandry work.

That life is long which answers life's great ends.

From the American Agriculturist.

City Manures.

Glass is a silicate of potash or soda, which enters into the composition of all grasses, straw, grain, and corn, forming a fraction of the solid portion of probably all vegetation. Silicate of potash and of soda, is silicious and chemically combined with those alkalies; that is, such sand as is commonly found on our sea-beach. Wheat contains a larger portion of silicate than any other grain; and if sown on land totally exhausted of this material, no wheat will be produced, however rich the soil may be in other fertilizers. When sown on land mostly exhausted of silicate, the crop will be small and the grain light in weight.

To apply glass to land, it should be ground as fine as flour. I have sold about 25 barrels of it to our farmers within the last six months, and the coming crops will test its value. The price charged, has been $1 75 per barrel, the barrel included; and when our farmers know that each barrel contains more than three hundred pounds, and that in this quantity there are from one hundred and five, to one hundred and twenty pounds of potash or soda, they will know it to be one of the cheapest fertilizers they can purchase, independent of any effect from the silex dissolved in it. It is purchasing pure potash or soda, at less than one cent and three-quarters per pound. I should consider one barrel per acre, to be an ample supply for two years' crops.

Many hundreds of tons of broken glass, are thrown away in New York and Brooklyn annually; and as every hundred tons contains from 35 to 40 tons of alkali, our Long Island and Jersey farmers may judge how much they lose by not employing it on their land.

I shall now call your attention to the plaster of Paris thrown away in New York. Such an assertion will no doubt surprise many a farmer who uses plaster; yet it is true, that scores of tons of the purest of plaster have been annually thrown away in our city. I last summer had carted away 21 barrels of it to put into a compost heap at Gravesend. In making soda water, they use carbonate of lime, from which they separate the carbonic gas to saturate the water contained in their fountains. To do this, they have to use sulphuric acid; this combines with the lime, separating it from, and liberating its carbonic gas, and the residuum thrown away, is the purest of plaster. Such plaster will be moist, yet sufficiently solid to cart away in flour barrels. Let those farmers who find plaster beneficial to their land, attend to this source of supply.

I shall now call your attention to the dock mud taken out of our docks by dredging machines. I was quite astonished the other day, to learn that this material was landed in scows, then warped to the tide current, and *there thrown into the river!* This is probably one of the most valuable fertilizers we have in the country, and the quantity is immense. It contains the whole wash of the city; and after a rain-storm, the most valuable portion of our street dirt settles in the docks. Chamber-lie, soap-suds, soap-lees, fish-offal, blood, pot-liquor, &c., &c., are the greater portion of them collected in the dock-mud. The very smell from the docks when foul, or the tide is low, is a pungent proof of its fertilizing power.

This material should be collected in some convenient spot where it can be landed, put into heaps under open sheds, mixed with lime, plaster, or charcoal, and let lie until a thorough decomposition takes place, and then applied to the land. There can be no doubt that one cart load from such a compost heap, would be more valuable to the farmer than three loads of the best street dirt.

It has been objected by some, that dock-mud contains salt. This, instead of being an objection, will be found to be one of its most valuable properties. The celebrated guano manure, taken to Europe from islands in the Pacific ocean, and selling there at $2 33 per 112 lbs., contains more than 30 per cent. of sea salt, a larger portion probably than would be found in our dock-mud. I should consider that a compost made from our dock-mud would be very little, if any, inferior to the guano manure.

Wm. Partridge.

New York.

For the Farmers' Cabinet.

Comparative advantages of Farming.

It is a prevalent opinion amongst young men—those who are engaged in agriculture, as well as many who are connected with commerce, that farming is less advantageous, and subject to greater hardships, than most other professions—but this arises, in a great measure, from partial views of the subject, and from an unacquaintedness, incident to the employments of others: they therefore form opinions merely from external appearances, without investigating the disadvantages attendant upon other occupations—and thus, enterprises are commenced and precipitate resolutions are formed, which lay the foundation of many disasters, which daily take place in families and amongst in-

dividuals. But the farmer possesses many advantages which these persons are apt to underrate. And first, his moral honesty is not so hardly tried, as it would be in many other kinds of business; and consequently, "defalcation" is not often charged upon him. Again, he has no knowledge of that competition which exists between those of other trades and professions; so that when he retires from his labour, he is free from those inward ranklings, which often harrow up the minds of persons engaged in trade. Nor is he in that danger of losing his property by casualties—fire, the winds and waves, and the depredations of dishonest men: and as he raises those articles upon his farm that are most necessary for his comfort, and which have always been considered cash articles in the market, he is not so liable to be put to his wits' end to procure money to purchase the necessaries of life. It has been objected, that farming is a laborious and dirty employment; but is there not hard and dirty work in the shop of the blacksmith! and do not the carpenter and mason encounter both, in the repairs of old buildings, &c.! and are the grocer, the warehouseman, the harness-maker, and the shoemaker exempt! Another objection is, it is a slow way to get money; true, there are shorter ways to make money, but it very often happens that those who accumulate property the quickest, cannot produce such a title to their wealth as will procure satisfaction and a quiet conscience. Multitudes, deluded by the deceptive allurements of trade, have entered into ruinous speculations, to the destruction of their own prospects and the peace and happiness of their families; stamping lasting blight upon their characters and future welfare, and all to gratify an insatiable appetite to make money quickly; overlooking the fact, that generally, the fortunes that have been made the most suddenly, are the most suddenly dissipated, and that those who enjoy the privilege of making money fast, have often to pay dearly for it, both in their persons and characters, and are made to exclaim, "all is not gold that glitters." Few know or consider, the *personal assiduity*, the economy, the self-denial and perseverance which are necessary to insure success in trade: there is no occupation exempt from its peculiar evils and trials—the physician, the lawyer and the clergyman, have their full share, of which the farmer is little aware; and if he could comprehend all the difficulties and unpleasant occurrences, which even these are continually liable to encounter, he would rejoice at his lot, rather than envy that of others; and bless his "lines that have fallen to him in such pleasant places," and be grateful for his "goodly heritage."

S. Brown.

Wilmington, Mass.

Variation of Crops.

It is a remark of practical men, that the land is *fresh* to such a crop, not having grown the same species for some years before; thus accounting for its flourishing appearance. To the question, what takes place in the soil during the growth of any particular vegetable? the reply is, that a fermentation, with the extraction of certain proportions of the materials of a decomposable nature contained within the soil, is effected during the process of vegetation, and in a manner *peculiar to the species grown*. Then, if the same grain or vegetable be sown the following year, the same precise fermentation and proportions must necessarily take place, and be required for the unfolding and perfecting of the same plant, and of course, so continue to be the case for any number of years afterwards. And what then must be the tendency of such a practice? why a rapid approximation to poverty and barrenness. In this view we are supported, most completely, by facts; for we see, in the space of a few years, that the land which is continued to be sown with the same species of grain, will produce next to nothing, save the weeds, which are indigenous to the soil and circumstances; and if manure be added under the idea of improving the grain, the weeds will still be the chief gainers, and flourish with proportioned vigor, and only choking the grain the sooner. It is true, that certain soils will bear a repetition of one kind of crop longer than others, according to their constitution; but in general, two good crops of the same species in succession, are rarely obtained from the same land; but let the land be cropped by a different species every year, for a few years together, and the fermentation with the extracted proportions, will then be varied according to the degrees of difference and peculiarities of the description sown; and these degrees of difference are denoted by the peculiar marks of vigor of the growing plants. By adopting this practice, instead of growing one productive crop only, a succession of two, three, four, or even more, may be obtained, to complete a series proportionate to the judiciousness of the selected variety and the soil; after which, the recurrence of the succession may take place with profit, and by proper cultivation conjoined with manuring, be continued forever, with the land improving. The advantages gained by the introduction of a va-

riety in succeeding crops, appears to be owing, in the first place, to some of the species rooting deep; others superficial; others diagonal, and so on; by which means every part of the cultivated soil becomes investigated by their fibres. In the second place, one plant may require a large proportion of oxygen, another of hydrogen, a third of carbon, and the like, to re-collect each of which, for the healthy maintenance of each respective plant, requires an interval of two, three, four, or more years, according, of course, to circumstances. And supposing the interval of any species of grain be passed over for a time, the result to be anticipated in the future crop of the same species, is—provided the land be kept in a high state of cultivation all the while—that the vegetation of the plants will prove conspicuously fine and vigorous, and at harvest exceed the former crop of the same species, either in grain or straw, or both. Relative to the truth of all the above particulars, it is only necessary to attend to the analyzed products of a few species of vegetables, and we find a difference in the proportion of the materials of which they are composed, which passing through their peculiar organization, causes that characteristic feature—their variety.

Experience has, a thousand times, confirmed the necessity of a variation in the succeeding crops, to a certain extent; consequently, the best judgment of an agriculturist is required to select those useful species which will follow each other most successfully; to ascertain also, the necessary interval of time of each respectively, before a repetition of the same course can take place, to ensure on an average of years, the greatest permanent produce at the least expense. A person first entering on a farm, may not be well acquainted with its constitution; therefore, the benefit of a few years' experience must be had, before the nature and properties of soil and circumstances can be fully known, and a permanent profitable produce gained.

Similies are great *elucidators*—the recourse to them will therefore assist in explaining more clearly, some parts of the reasoning which has here been employed. Let then, a piece of fresh-burnt lime have a little water poured on it; a chemical process commences, which exhibits itself by the lump of lime breaking to pieces, the vanishing of the water accompanied with the evolution of heat and steam—and then all is quiet; but a little more water being thrown on, the same process and result ensue, which may be repeated till the whole mass is saturated with water, and converted into the hydrate of lime, when, the balance of affinities being established, no further decomposition and evolution of heat will take place, whatever quantity of water may be afterwards applied. This hydrate of lime may be dissolved, and with the addition of sand, form mortar, or be mechanically suspended in a body of water; but the same recurrence of phenomena is impossible, until the hydrate has been exposed to the fire of a furnace to re-expel the water; when the same appearances will be visible on a second application of water. But let the hydrate of lime be exposed to the influence of carbonic acid, and the hydrate will in due time become the carbonate of lime; for this acid, having a stronger affinity for lime than water, expels the water and combines with the lime; and during this change, a different fermentation goes on from the former, and continues until the lime is saturated with the acid, when all is quiet again. Now let a third substance be applied to this carbonate of lime, as the muriatic acid, which has a stronger affinity for lime than the carbonic acid, and this acid will, in its turn, dislodge the carbonic acid, by a strong and rapid effervescence, until the balance of affinities is once more established, and the *carbonate* changed to the *muriate* of lime, when no further addition of the same acid will have effect. Suppose, however, the sulphuric acid be next employed, which, from its superior power over the muriatic, will take place of the same; the *sulphate* of lime will then be formed. And then, having gone through this series of changes, if the furnace be again had recourse to, the lime may be once more obtained pure, and all the before mentioned phenomena, like a course of crops, can be practised and seen a second, a third or fourth time, or as often as may be desired.—*Bland's Agriculture.*

For the Farmers' Cabinet.

Summer Soiling.

Messrs. Editors,—Your intelligent correspondent, Mr. B. Webb, of Wilmington, Delaware, is preparing to put the summer soiling of cattle to the test of experiment; his intention being, to soil his dairy cows on cut clover, grass, green oats, corn sown broadcast, &c., during the whole of the season, and to note the result; and in the hands of such an experienced cultivator of the soil, we may be assured that justice will be done, and a true account rendered, whether for, or against. With this view, he is removing away a great portion of the internal fencing of his farm, which being post-and-rail, on a close and retentive subsoil, has entailed

great expense and labour in the article of repair, and will soon require a total renewal.

Now, I too am a strong advocate for summer soiling, and from the little information which I have been able to collect, have no doubt of its being a profitable, economical, and by no means a troublesome system; but I would ask my soiling friends, how do they intend to supply their dairy cows with green food, before the crops are sufficiently advanced in growth to afford a cut for the scythe? or do they contemplate to keep their milking stock in the yard, and continue to feed on hay and grain after there is a *bite* in the fields, and until the time of mowing? if so, this is by no means an encouraging feature in the plan, for a couple of weeks of early grass to the future welfare of the dairy, after being confined the whole winter in the yard, will not easily be overrated; so necessary is it to get the cows into good heart and condition as early as possible in the spring, or the summer will be too short from whence to reap much profit by their milk; and of this, I have, unfortunately, ocular demonstration, for my neighbour Jameson's cows, are but just able to pick up during the summer, what they have lost the preceding winter—leave alone the business of the dairy—and the business of the straw-yard is commenced, under a condition of *keep*, that scarce deserves the name.

But I have gathered from the Cabinet and elsewhere, that the people of the island of Jersey—from whence come the Alderney breed of cattle, which seem about to have a *turn* in the estimation of our dairymen, are accustomed to tether their live stock, horses, cattle, and even sheep on their young grass; and it is confidently asserted, that this system is the most economical that can be devised, although it is admitted that much care and attention are requisite; for, as only about two feet space of pasture is given to the animal at once, it would be necessary to remove it often; the tether being either a rope or chain, made fast to an iron plug, round which is placed a swivel, which is driven securely into the earth. Each remove, therefore, gives a semi-circular sweep of fresh grass, about two feet in width, upon which the animal is prevented from treading, by being kept back by the rope or chain; and thus the whole of the herbage is fed clean off, and closer than it could be mown. It is customary to make fast the chain or rope to the *foot* of the horse and the *horns* of cattle, care being taken to fix the rope on the latter, so that it does not draw tight by a slip-knot, which would injure the root of the horn.

Now could not this plan be adopted until the crops become sufficient in growth to permit the use of the scythe? this would be in the cool part of spring; when the weather becomes hot, soiling in the stable would no doubt be preferable. But I hear some one exclaim, "It won't pay, my dear sir;" to which I reply, the plan might as well be tried before it is condemned; and I have yet to learn why it is, that every business except agriculture, will pay the expense of good management. It is granted, that a degree of care and attention is requisite; but if a man is paid for his labour, what more ought to be expected? and two or three weeks of early green food in the spring, would be sure to do that, and leave a profit in the future well-being of the dairy.

I understand that Mr. Webb is cultivating potatoes the present season, upon Col. Barnum's plan, laying on a double quantity of manure at two separate times, literally hilling up the sets, placed at two feet distance each way, with dung. His friends and neighbours will be much indebted to him for the benefit of the experiment, and may he reap a rich return for his labour: such experiments are of incalculable value to a whole country. His son, Mr. William Webb, is now engaged planting corn for another experiment, in the making of sugar from the stalk: such untiring zeal in a cause fraught with so much importance to his country's welfare, ought to be crowned with success—may he live to experience it, and receive the reward so justly his due.

Vir.

May 18th, 1843.

Effects of culture.—The almond, with its tough coriaceous husk, has been changed by long culture into the peach, with its beautiful, soft, and delicious pulp; the acrid sloe, into the luscious plum; and the harsh, bitter crab, into the golden pippin. Attention to nutrition, has produced quite as marked changes in the pear, cherry, and other fruit trees; many of which have not only been altered in their qualities and appearance, but even in their habits. Celery, so agreeable to most palates, is a modification of the *apium graveolens*, the taste of which is so acrid and bitter that it cannot be eaten. Our cauliflowers and cabbages, which weigh many pounds, are largely developed coleworts, that grow wild on the sea-shore, and do not weigh more than half an ounce each. The rose has been produced, by cultivation, from the common wild briar. Many plants may be modified with advantage by suppressing the growth of one part, which causes increased development of the other parts.

Irrigation,--Drainage.

Editors of Farmers' Cabinet,—As you were pleased to give room in your April number, to a short article on Irrigation, I have inferred that you judge the matter of sufficient importance to claim the attention of your readers. Perhaps they, like myself, may be willing to look a little further into it, and the kindred subject of drainage. I have accordingly gleaned some extracts from the January number of the Westminster Review, which, with the accompanying remarks, I offer for your columns.

We are aware that the draining of vast bodies of lands in Great Britain, is frequently a matter of so much importance, as to become one of Parliamentary interference. The powers of the steam engine are there called in, and the multiplication of under drains with tiles, is often submitted to, for the purpose of draining their wet lands, at an expense per acre, that would frighten the American agriculturist. Yet in many of these instances, we find the enterprising undertakers declaring, that the results have afforded most profitable investments for capital. Not only is private interest to be regarded in justification of the expense, but we should keep in view the fact, that "every step towards improvement, is an advance in reduction of the existing burdens" of the people at large. Agricultural writers in England, are quite of the opinion, that while the population of that country is increasing 14 or 16 per cent. every ten years, the growth of wheat—the most important of her crops—may readily be increased in a still greater ratio, by a general system of drainage, and the necessary attention to irrigation. Indeed, by passing the rich sediments of their streams over their fields, fertility may be increased beyond any thing it is easy to calculate. We speak more particularly of the results of these measures in Great Britain, because it is an English article on these subjects, that we set out with noticing: we are, however, inclined to believe, that the enterprizing American farmer, may learn much to aid him in bringing into profitable use, many of his now worthless acres. Lord Stanley stated at Liverpool, in 1841, "that there was no bank in the whole country—no commercial speculation—no investment so safe, so sure, so profitable, as that in which even borrowed capital may be engaged, by investing it under the ground of your own soil." To carry out a complete measure of under drainage for the whole of the wet lands of Great Britain, different estimates have been made of the capital that would be required, varying from £85,000,000 to £150,000,000 sterling! And yet it is confidently asserted, that the result would justify the expenditure of so large a sum.

"The benefit of irrigation," say the commissioners for the drainage of the bogs of Ireland, "is necessarily connected with an effectual drainage." And "what valuable matter," says the Westminster Review, "is abstracted from the land, by various rivers of the different continents! Hartsoeker computed the Rhine to contain in suspension one part mud, to ninety-nine parts water. Sir George Staunton states, the Yellow river to contain one part in two hundred. The alluvial soil deposited by the waters of the Nile, is 14,784,000 solid feet per hour. The Mississippi deposits 8,000,000 solid feet per hour, and the Koangho, according to Barrow, carries hourly into the sea, 2,000,000 solid feet of sediment. Major Rennell considers the Ganges to contain of sediment, one part in four;* and says, no wonder then, that the subsiding waters should quickly form a stratum of earth, or that the delta should encroach on the sea. Mr. Everett calculates the annual discharge of sediment from the same river, at 6,368,077,440 cubic feet."

It has been calculated, that the proportion of impurities to the volume of the water of the Thames, is about as one to ten thousand. If, however, the surface-cleansing of the streets, were added to the ordinary mass of impurity, the proportion held in suspension, would probably be about double that just mentioned. Of what incalculable importance then, must it be to the productiveness of the countries through which these rivers pass, to be able to throw the rich matter which they hold in suspension, over their lands.† "The testimony of Mr. Stephens," says the Review, "goes to show that the winter time is the most proper for irrigation. The water should be allowed to run through the whole of October, November, December and January." It has been estimated that in England and Wales, there are 10,000,000 of acres of cultivated lands, that require draining; and an equal quantity of waste lands, from which the water might be drained by a general measure. If the water thus acquired by draining from 20,000,000 of

* We cannot help suspecting there must be a misprint of the Major's estimate.—Ed.

† Johnston says in his Elements of Agricultural Chemistry, "The very fertile alluvial soil of East Friesland, formerly overflowed by the sea, but for sixty years cultivated with corn and pulse crops, without manure, has been analyzed, and found to contain ten per cent. of organic matter."

acres, were properly disposed of, and applied to machinery to the best advantage, calculations have been made, showing that the gross amount of this power, would be superior to that of a million of horses. One can scarcely calculate the saving to the coal fields of England, which the now unappropriated water power, equal to 1,000,000 of horses, would produce. And this is a subject of great magnitude to that country;—some of her first geologists are of the opinion, that the coal beds, broad and liberally distributed as they are, are yet by no means inexhaustible. "Mr. Boulton," says the Review, "at a meeting convened to take measures for erecting a monument to the memory of the late James Watt, is related to have said, that the establishment to which Mr. Watt belonged, had produced steam engines equal to the power of 100,000 horses, and that this was a national saving, to the extent of £2, 500,000, annually. It appears from this, that Mr. Boulton estimates the advantage of steam power, over that of animal power, at £25 each horse." In estimating the value of water power, its inexhaustible nature may be considered its first recommendation. The benefits to be derived from irrigation—both by a judicious appropriation of the natural streams, and by advantageously using the surplusage of rain water,* are incalculable in themselves, and their sources inexhaustible. Every year is diminishing the quantity, and increasing the demand for coal. The call is for steam—steam! The wonders which it is daily performing by the aid of science, accustom us to look to it for every thing, and to overlook, in some measure, the value of water power. The farmer even, if we may judge from an article in your last number, is dreaming of his steam plough; and why should he not so dream, when steam has enabled him to buy a shirt for three or four cents a yard, and he sees the printer forego the strong pull that was formerly indispensable, and with astonishing rapidity, send abroad for a dime or two, a volume that would have cost our fathers as many dollars. Still, it may be well to remember what Dr. Buckland has more than once taken pains to impress the public mind in England with—that there is sound policy in husbanding the coal.

"Water," says the Westminster Review, "is a natural power, constant and inexpensive, because it may be applied where it is procured, and if not used, would be lost. Therefore we do not hesitate to say, that it is two-thirds cheaper than steam, and four-fifths cheaper than horse power:" and suffer me to add in conclusion, that its value for irrigation, is not appreciated in the United States.

Z. Y.

* The average fall of rain annually in England, is according to Dr. Dalton, 31½ inches. In London, the average for the last 40 years, has been about 20½ inches. It is greater as we go north. In Westmoreland and Lancashire, it ranges from 40 to 70 inches. In this city, the average for the last 33 years, was about 38½ inches.—See Farmers' Cabinet, page 200, of the current volume.—Ed.

For the Farmers' Cabinet.

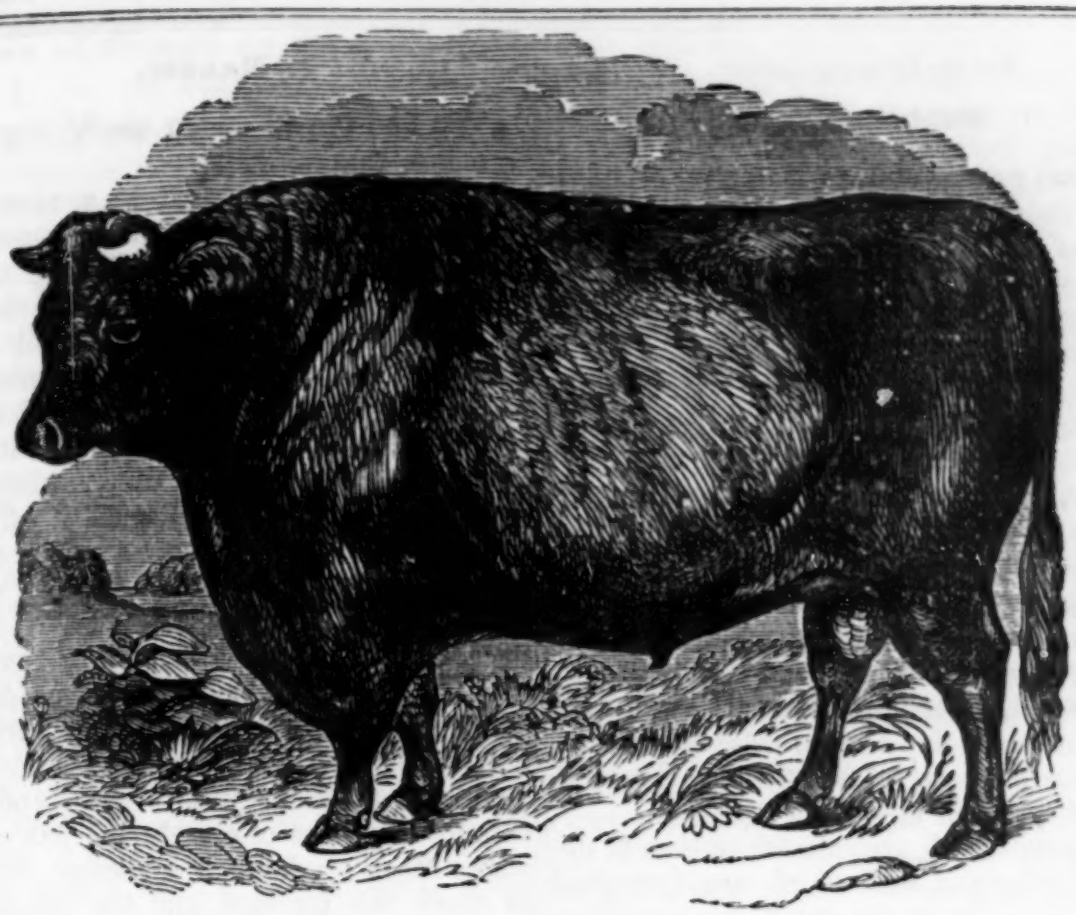
The Universal Corn crop.

Universal indeed! and yet there are still features in its character that have not been sufficiently, if at all noticed by us. One of these is, the great difference in the cost of seed for planting, when compared with that of wheat, amounting to about a rent of the land at the first start: for while the two bushels and a half per acre of seed-wheat, cannot be valued at less than three dollars, or perhaps four, the seed-corn necessary for an acre of land, is so insignificant in cost, that no one, scarcely, ever counts upon it. And then at the time of harvest, the difference is still greater; for while the corn will stand to ripen without the loss of a single grain by shaking out, the britting of the wheat crop and loss by scattering, at the time of cutting, cannot be counted less than about the seed sown, and oftentimes double that quantity. Here then, are six or seven bushels of wheat to be put to the account of seed-grain and loss at harvest—an ample profit per acre, on the corn crop to begin with, to say nothing of the greater increase of crop, as might in all cases be calculated upon, if justice be done in the working. It is admitted, that this after-working is laborious and expensive; but one half the cost should be transferred to the succeeding crops, which are benefited by this admirable system of fallowing, fully to that amount. In short, any how you can fix it, there is *nothing like corn*—how far it would be expedient to substitute its culture for that of roots, is another and interesting question for future discussion.

M.

Lancaster co., Pa.

Cause of rain.—The theory propounded by Dr. Hutton, that rain occurs from the mingling together of great beds of air of unequal temperatures, differently stored with moisture, is that which was adopted by Dalton, Leslie, and others, and is the current one, having been illustrated and strengthened by the clearer views of the nature of deposition which we now possess.—*Book of the Farm.*



A BULL

Of the improved Teeswater breed, the property of the Rev. Henry Berry.

From the earliest periods as to which we have any account of the different breeds of cattle, the counties of Durham and York have been celebrated for their Short-horns; but principally, in the first instance, on account of their reputation as extraordinary milkers. To recite their recorded feats at the pail, would be to invite incredulity, but it may be asserted on the best evidence, that taken as a breed, they have never, in this particular, been equalled. But the cattle so distinguished, were very different from the improved Teeswater race; for they were generally of large size, thin skinned, sleek-haired, bad handlers, rather delicate in constitution, coarse in the offal, and strikingly defective in the substance of girth in the fore-quarters. As milkers, they were most excellent, but when put to fatten, as the foregoing description will indicate, were found slow feeders, producing an inferior quality of meat, not marbled or mixed as to fat and lean; and in some cases, the latter was found of a particularly dark hue. A period of about an hundred years has elapsed, since the Short-horns on the banks of the river Tees—hence called the Teeswater breed—had assumed a very different character from that contained in the foregoing description: in colour, they resembled the improved Short-horns, being occasionally red, red and white, and roan, although the last named colour was not so prevalent as now: they possessed a fine mellow skin and flesh, good hair and light offal, particularly wide carcasses, and fore-quarters of extraordinary depth and capacity. Perhaps no closer modern resemblance can be found to the above description of the improved Teeswater breed, than the Rev. Mr. Berry's bull presents, the portrait of which accompanies this account: his dam was purchased by Mr. Berry, on account of the very few crosses that had intervened between her and some of the best of the Teeswater cattle, to which he was desirous to go back, on account of the extent to which breeding in and in, had been carried. When slaughtered, the *proof* of this improved breed is excellent, and many instances are recorded of the wonderful weight of their inside fat. The remarkable difference which existed between the Teeswater and the old unimproved breed of Short-horns, may, with propriety, be ascribed to a spirit of improvement which had for some time manifested itself amongst the breeders on the banks of the Tees, but whose laudable efforts were, however, well seconded by the very superior land in the vicinity of that river; and no reasonable doubts can be entertained, that they proceeded on a judicious system of crossing with other breeds; because it was impossible to raise such stock as the Teeswater, from the pure Short-horn breed.

For an admirable portrait of the improved Yorkshire Dairy cow, we would refer our readers to the Cabinet, vol. 6, page 209.

For the Farmers' Cabinet.

Stubborn Facts.

1. The green-sand marl works wonders on the lands of Jersey, even to the very shores of the Delaware, and vast quantities of this valuable article are brought down the Rancocas creek every year, for the supply of places adjacent; but convey it to the opposite side of the river, and within sight of the scene of its most perfect operations; apply it to any crop, and at any season of the year, and no good whatever, will result from its most careful use.* The same experiment has also been made on the lands of Blockley alms-house, on the west side of Schuylkill, without the least sign of benefit, from the most expensive dressing.

2. Plaster, so beneficial and of such very general use in the United States, has not been known to be of service in England, either as a top, or any other dressing.

3. Bones, which are in such universal demand in England, and which are furnished from this country in the greatest abundance, paying amply for many miles of land carriage, in addition to the expenses of freight across the Atlantic, have been tried in this country, and found "wanting," even after the most liberal and careful application;—while in England, six bushels of bone-dust drilled amongst the turnip seed for an acre of sterile upland soil, is sufficient to quadruple the crop, and leave the most lasting effects for future years.

4. Lime, although generally considered of the greatest importance to the agriculture of a country, has often been known to disappoint the expectations of its friends. It is declared to be useless in the Eastern States, for what reason, it is difficult at present to conjecture. Hence arises, in all probability, a portion of that discrepancy in public opinion, regarding its real value, and the wide and very discordant statements that have arisen, respecting its baneful or beneficial influence; many persons, even now, considering it a septic, while others are as strongly of the opinion that it is antiseptic in its nature. These are stubborn facts, which should teach us prudence in judging the opinions of others, and caution in the formation of our own. Z.

May 18th, 1843.

* Although our correspondent speaks positively upon this subject, we are not aware that fair and thorough trials have been made, to establish the proposition, that the green-sand marl does no good on this side the Delaware, on soils apparently similar to those in Jersey, upon which it produces the greatest and most lasting effects. It is upon the cold, heavy, flat, quick-sandy, but well drained lands of that State, that we find the most astonishing results from its application. We would much like to be more particularly advised of the results of particular and recent trials of this marl in Pennsylvania.—Ed.

Manure.

We find the following useful suggestions in a late English paper:

"It is well known that in a close stable, where there are a good many horses, there is a very pungent smell, affecting the eyes and nose, more particularly when the stable is being cleaned out. This smell is occasioned by the flying off of ammonia, which is the very essence and value of manure, and which volatilizes or flies off at a very low temperature—even the warmth of the manure in a stable will send it off, and it goes off in great quantities by the common heat of the manure in a farm-yard, whether thrown up in heaps or not. There is, however, a very cheap and simple remedy for this. Before you begin to clear out your stable, dissolve some common salt in water; if a four-horse stable, say four pounds of salt, dissolved in two buckets of water and poured through the nose of a watering pan over the stable floor, an hour or so before you begin to move the manure, and the volatile salts of ammonia will become fixed salts, from their having united with the muriatic acid of the common salt, and the soda thus liberated from the salt, will quickly absorb carbonic acid, forming carbonate of soda; thus you will retain with your manure the ammonia which would otherwise have flown away, and you have also a new and most important agent thus introduced, viz., the carbonate of soda. As this is a most powerful solvent of all vegetable fibre, and seeing that all manures have to be rendered soluble before they can act upon vegetation, it will be at once apparent that the carbonate of soda so introduced, must be a most powerful and valuable agent."

Air slacked lime is innoxious to growing plants generally, if we except *mosses* and *lichens*, to which it is fatal. Hence it is constantly employed by gardeners, to dust their peas and other crops, liable to be infested by slugs, and also to remove moss, &c., from gooseberry and currant bushes, which it speedily and effectually cleanses. Mixed with coal soot, it causes the extrication of much ammonia, and therefore should never be added to liquid urinous manures, as it volatilizes their ammonia.—*Farmer's Magazine.*

Influence of Climate on the fruitfulness of Plants.

The following article, quoted from "a sensible and eloquent American writer," we take from the sixth Number of the Farmer's Encyclopædia. We have been delighted in its perusal, and have no doubt our readers will also enjoy it. There is a vein of sound philosophy running through it,—an aptness of illustration, and mellowness of feeling, which characterize it, in our estimation, as of more than ordinary interest. The writer might have extended his speculations into the animal kingdom, and have been at no loss to produce numerous instances, corroborative of similar views.

Ed.

"The cultivated plants yield the greatest products near the northernmost limit in which they will grow.

"I have been forcibly impressed with this fact, from observing the productions of the various plants, which are cultivated for food and clothing in the United States. The following instances will go far to establish the principle.

"The cotton, which is a tropical plant, yields the best staple and surest product in the temperate latitudes. The southern parts of the United States have taken the cotton market from the East and West Indies, both as regards quantity and quality. This is partly owing to the prevalence of insects within the tropics, but principally to the forcing nature of a vertical sun. Such a degree of heat developes the plant too rapidly—runs it into wood and foliage, which become injuriously luxuriant; the consequence is, there are but few seed pods, and these covered with a thin harsh coat of wool. The cotton wool, like the fur of animals, is, perhaps, designed for protection; and will be thick and fine in proportion as the climate is warm or cool. Another reason is to be found in the providence of the Deity, who aims to preserve races rather than individuals, and multiplies the seeds and eyes of plants, exactly as there is danger of their being destroyed by the severity of the climate, or other causes. When, therefore, the cares and labours of man counteract the destructive tendency of the climate, and guaranty their preservation, they are, of course, more available and abundant.

"The lint plants, flax, hemp, &c., are cultivated through a great extent of latitude, but their bark, in the southern climates, is harsh and brittle. A warm climate forces these plants so rapidly into maturity, that the lint does not acquire either consistency or tenacity. We must go far north in Europe, even to the Baltic, to find these plants in perfection, and their products very merchantable. Ireland is rather an exception as to latitude; but the influence of the sun is so effectually counteracted there by moisture and exposure to the sea air, that it is always cool: hence, the flax and potato arrive at such perfection in that region.

"It holds equally true in the farinaceous plants. Rice is a tropical plant; yet Carolina and Georgia grow the finest in the world; heavier grained, better filled, and more merchantable, than any imported into Europe from the Indies. The inhabitants of the East Indies derive their subsistence almost exclusively from rice; they must be supposed, therefore, to cultivate it with all skill and care, and the best contrivances for irrigation. Such is, however, the forcing nature of their climate, that the plant grows too rapidly, and dries away before the grain be properly filled. Indian corn, or maize, if not a tropical plant, was originally found near the tropics; and although it now occupies a wide range, it produces the heaviest crops near the northern limit of its range. In the West Indies it rises thirty feet in height; but with all that gigantic size, it produces only a few grains on the bottom of a spongy cob, and is counted on only as rough provender. In the southern part of the United States, it reaches a height of fifteen feet, and will produce thirty bushels to the acre; in the rich lands of Kentucky and the middle States, it produces fifty or sixty bushels to the acre; but in New York and New England, agricultural societies have actually awarded premiums for one hundred and fifty bushels to the acre, collected from stalks only seven feet high. The heats of a southern sun develope the juices of this plant too quickly. They run into culm and blade, to the neglect of the seed, and dry away before fructification becomes complete.

"Wheat is a more certain crop in New York, the northern part of Pennsylvania, and Ohio, and in the Baltic regions of Europe, than in the south, either of Europe or America. In the north, snows accumulate, and not only protect it from the winter colds, but from the weevil, Hessian fly, and other insects that invade it; and in the spring it is not forced too rapidly into head, without time to mature fully, and concoct its farina.

"A cold climate also aids the manufacturing of flour, preserving it from acidity, and enables us to keep it long, either for a good market, or to meet scarcities and emergencies. Oats grow in almost every country; but it is in northern regions only, or very moist or elevated tracts, that they fill with farina suitable for human sustenance. Rye, barley, buckwheat, millet, and other

culmiferous plants, might be adduced to illustrate the above principle; for all their habits require a more northern latitude than is necessary to their mere growth.

"The grasses are proverbially in perfection, only in northern and cool regions, although they will grow everywhere. It is in the north alone, that we raise animals from meadows, and are enabled to keep them fat and in good condition, from hay and grass alone, without grain. It is there the grasses acquire a succulence and consistency enough, not only to mature animals, but to make the richest butter and cheese, that contribute so much to the tables of the luxurious. The grasses which do often, in the south, grow large enough, are without richness and nutriment; in hay, they have no substance; and when green, are too washy to fatten animals; the consequence is, most animals in those latitudes, browse from necessity, and are poor, and without size or beauty. It is the same hot sun which forces them to a rapid fructification, before they have had time to concoct their juices. The sugar-cane produces, perhaps, better where it never seeds, than in the tropics; for the juices will never ripen so as to granulate, until checked by frost or fructification. In the tropics, the cane grows twenty months before the juices ripen; and then the culm has contracted a woody, fibrous quality, to such a degree as to resist the pressure of the mills, and yields but little juice, and that to an increased effort. In Louisiana, we succeed well with the sugar culture; because, while the culm is succulent and tender, a white frost checks the growth, ripens the juices, and in five months gives us a culm, tender, full of juice, easy to press, and yielding much grain of sugar. When Louisiana, therefore, acquires all the necessary skill, she will most probably grow this article cheaper than the West Indies.

"Tobacco is a southern plant, but there it is always light and chaffy; and although often well flavoured, it never gains that strong narcotic quality which is its only peculiar property, unless you grow it as far north as Virginia. In the south, the heat unfolds its bud or gem too soon, forces into full expansion the leaf, and drives it to seed before the narcotic quality can be properly elaborated. We may assert a general rule applicable to all annual plants, that neither the root, nor the leaf, acquires any further size or substance after fructification.

"The tuberose, bulbous, and other roots, cultivated for human and animal subsistence, are similarly affected by climate, and manifest habits in corroboration of the above principle. The Irish potato, although from or near the tropics, will not come to perfection but in northern or cool countries, or in moist, insular situations, as Ireland. It is in such climates alone, that its roots acquire a farinaceous consistence, and have size, flavour, and nutriment enough to support, in the eminent way in which they are susceptible, animal life. In the south, a forcing sun brings the potato to fructification before the roots have had time to attain their proper size, or ripen into the proper qualities for nourishment. In Ireland the plant grows slow, through a long and cool season, giving time for its juices to be elaborated and properly digested; hence that fine farina and flavour which characterize them. The sweet potato produces larger, better flavoured, and more numerous roots in Carolina, where it never flowers, than in the West Indies. In the latter place this plant runs wild, covers the whole face of the earth with its vines, and is so taken up in making foliage, that the root becomes neglected, and is small and woody. In order to have the onion in perfection, it must grow through two years, swelling all the time its bulbs. In the south, however, it seeds in one year, and before it has made much bulb. Beets, carrots, parsnips, turnips, radishes, and other roots, are equally affected by a hot sun, and scarcely worth cultivating far to the south. They all fructify before they have formed perfect roots, and make foliage at the expense of their bulbs; hence they will always be articles of commerce; the south will have to depend upon the north for them.

"The salad plants are in like manner affected by climate, and give further proofs of our assumption. Cabbages, lettuces, endive, celery, spinage, plants whose leaves only are eaten to protect their germs from cold, through a kind of instinct, wrap them up in leaves, which form heads, and render many of their other parts tender and crisp for use. These leaves, thus protected, are not only tender, but more nutritious, because their growth has been slow and their juices well digested. In the south, a relaxing sun lays open the very buds of such plants, gives a toughness and thinness to the leaves, and they are too unsubstantial for animal support, because of such quick and rapid development.

"The delicious and pulpy fruits are, in a still more striking way, illustrative of our principle. The peach, nectarine, plum, apple, cherry, currant, gooseberry, apricot, and many other such families, are not in perfection in the south. It is in Pennsylvania, Virginia, Maryland, Jersey, and in the north of Europe, that we enjoy them, although, originally, they came from places

near the tropics. The peach of the Carolinas is full of larvæ, gum and knots, and too stringy and forced to be juicy and flavoured. The apple of the south is too acerb to be either eaten or preserved. The plums, apricots, cherries, currants, gooseberries, &c., will not even mature until we go far north. All the trees which bear these delicious fruits, will grow luxuriantly in the south, make much foliage and wood, with but little pulp, and that unsavoury. The kernel in the one-seeded fruit, seems to be the first object of nature in southern climes: that becomes strong, oily, and enlarged; and one of the peach family has so entirely neglected the pulp, that it has only a husky matter around the kernel, as the almond. The changeableness of the weather in the south, in the spring season, throws plants off their guard; the frosts attendant on those changes, destroy the young fruit; and it is only one year in three, that the crop hits at all. The desiccated or dried state of these fruits, enables us to enjoy them through the year; but in the south, their acidity carries them into fermentation or decomposition, before they can be divested of their aqueous parts. The climate of the south is equally against converting them into cider, or any other fermented liquor, because the heat forces their compressed juice so rapidly into an active fermentation, that it cannot easily be checked until it passes into vinegar. For the same reason, distillation goes on badly in hot climates, and cannot be checked long enough at the proper point to give much alcohol: and whether we aim to enjoy the delicious freshness of these fruits themselves, sip the nectarine of their juices, refresh ourselves with their fermented beverage, stimulate our hearts with their brandies and cordials, or feast through the winter upon the dried or preserved stores of their fruits, we are continually balked by the severity of a southern climate, and for such enjoyment must look to the north.

"The melons are always affected by too great a degree of heat, even though their vines flourish so much in southern latitudes. The forcing sun hurries them on to maturity before they have attained much size, or acquired that rich saccharine and aromatic flavour for which they are so much esteemed. The cantelope-melon will rot, or have its sides baked by a hot sun, before it is fully formed; and the water-melon is always woody, dry, and devoid of its peculiar sweetness and richness, in the south. Vines have been known to run one hundred feet, and bear no melon. It is in Philadelphia, and its neighbourhood, and in similar latitudes, that the markets are loaded with delicious melons of all sorts, whose flavour so much refreshes and delights us. It is there, near their northern limit, that we cultivate them with such uniform success.

"The orange, strictly a tropical plant, is more juicy, large, and delicious, at St. Augustine (Florida.) than at Havana; and fruiterers, in order to recommend an orange, will say that it is from some place out of the tropics. In the West Indies, the pulp of the orange is spongy, badly filled with juice, and has too much of a forced flavour to be pleasant. The hot-house forcers of Europe, or at Rome, anciently, at first produced bad fruit; too dry, too small, and without flavour; because they overacted. They have lately found out that fact, and now the productions of the hot-houses of London, Paris, &c., astonish and delight us with the quantity and excellence of the fruit. They have found out that gradual and uniform heat is the desideratum; countervailing the cold, rather than imparting much heat. Fruit thus produced, is pronounced better than any grown in the natural way, however perfect the climate.

"The juices of the grape are best matured for wine, near the northern limit of their growth. On the Rhine, in Hungary, the sides of the Alps, and in other elevated or northern situations, the wine is strongest, richest, and most esteemed. The French wines rank before the Spanish and Italian; and in no southern country of Europe or Africa, except Madeira, where elevation makes the difference, is the wine in much repute. The grapes of France are more delicious for the table than those of Spain or Madeira. In the southern part of the United States, the excess of heat and moisture blights the grape to such an extent, that all attempts have failed in its cultivation. The grape-vine, however, whether wild or cultivated, grows there very luxuriantly. The vinous fermentation can also be best conducted in a climate comparatively cool; and all the pressing, fermenting, and distillation of the juice of this delicate fruit can be safer and more profitably managed in a mild region.

"The olive, and other oleaginous plants, yield more fruit, of a richer flavour, and can be better pressed, and the oil preserved, in a mild climate. In France the tree is healthier, and the fruit and oil better than in Spain or Italy; and the Barbary States are known to import their oil from France and Italy.

"Many other plants might be named, whose habits would equally support our position. It is presumed, however, that enough have been cited to call the attention of phi-

losophy to this curious subject, and enable us to give proper attention to it, in all the practical operations of agricultural pursuit. Much time and expense might be saved, and profits realized, if this were more generally understood.

"We have already observed, that the heat of the sun in southern climes, forces plants to a false maturity, runs them on too rapidly to fructification, and renders dry and woody the culms, stalks, and leaves of the plants, where these parts are used. Hence the chaffiness of the leaf, the dryness of the culm, the lightness of the grain, and the unsavoury, spongy quality of the pulp of the plants in those latitudes. Hence the difficulty of fermenting their juices, distilling their essences, and preserving for use the fruit, juice, or blades of such plants. The prevalence of insects is another bar to the productiveness of southern plants: swarms of them invade and strip the leaves, bore the fruit, and lead to blight and decomposition; and just in proportion as the labours of man have rendered plants succulent, and their fruits and seeds sweet and pleasant, do these insects multiply on them, devour their crops, and defeat the objects of husbandry.

"The labour of man too is more conservative in northern climates, because his arm is better nerved for exercise, his health and spirits more buoyant; and instead of saying, 'Go and work,' he says, 'Come and work;' treads with a cheerful heart upon his own soil, and assists in the cultivation, collection, and preservation of his own productions. It is in temperate climates that man can be most familiar with nature; it is there he has the best opportunities of observing the guarantees which nature has for the preservation of her animals and plants against the devastation of the elements; he sees an occasional apparent neglect of individuals, but a constant parental care of races. In every thing he sees the wisdom and benevolence of God."

Lord Wodehouse, President of the East Norfolk Agricultural Association, said recently, at one of its meetings, that every one knew, "what is produced from farm-yards, was the best possible manure. The greatest chemist in existence, with all his skill and ingenuity, could produce nothing like farm-yard manure. That was quite clear, but still they wanted chemical assistance. He had heard a story of a farmer, who, being told of the great improvements made at Holkham, said, I don't care about Squire Coke, give me muck to my land."

An obedient wife rules her husband.

For the Farmers' Cabinet.

Floriculture.

An intelligent friend, long accustomed to the pursuits of floriculture, and remarkably fortunate in raising plants from seed and cuttings, attributes his success, in a great measure, to the plan he has invariably adopted, which is, to keep his plants as near the level of the ground as possible; the windows of his kitchen affording him the best situation for striking cuttings, &c.; after which come his parlour windows, and then those of his first floor; but above this, his plants never flourish. And the cause for this, he considers perfectly plain and natural; for at, and near the surface of the earth, there is always a degree of moisture floating in the atmosphere; but above, it is wanting; while the altitude of a third story, or an attic, is dry and unfriendly to vegetation.

When the season arrives for the removal of his plants from the house to the open air, he is careful not to set the pots on bricks or a pavement, for these are continually extracting moisture from the earth in the pots, and in hot weather the roots of the plants are thereby scorched and dried up. He places them on the earth, and in watering, pours some between them, and thus the pots are kept moist and cool during the hottest day. It is a fact, that no where have I seen finer plants than his; nor do I know any one who can raise them with such certainty, and with so little trouble or difficulty: and believing that the hint may be valuable to many of your readers, particularly to those whose labours in floriculture are chiefly confined to the house, it is communicated, in the hope that they will reciprocate, if in their power so to do. S. Dale.

Fossil foot marks.—Very many of our readers are geologists, and would therefore be glad to obtain slabs of stones having the foot-steps of extinct animals upon them. A famous locality for these stones, is on the Connecticut river, near Greenfield, in the new red sand stone. Perfect tracks of birds and the impressions of fossil fishes are obtained; but not in such plenty as to furnish all applicants. Plaster models are now substituted, giving exact copies of the foot-steps of Ornithichnites and Sauroidichnites, coloured to nature, all packed in boxes, for which $10 is asked.—*Boston Medical and Surgical Journal.*

Make for the hogs a warm nest—*comfort* is cheap food for all domestic animals.

From the New Haven Herald.

Sociability of Birds.

LETTER FROM A YOUNG LADY TO REV. MR. LINDSLEY, OF STRATFORD.

DEAR SIR,—Having often heard that yourself and family were very fond of birds, and something of a very interesting nature concerning them having come directly under my own observation, indeed quite in connection with myself, I thought an account of it might not prove uninteresting to you.

Early in the summer of 1840, as I was one morning reclining on my couch, in the back room, the doors being open, a very small bird came hopping in, and ran about the floor, apparently in quest of something to eat. I happened to have a soda biscuit about me, and instantly threw it some crumbs, which it ran to eat, as if very hungry. In a few minutes it flew out.

Before long it returned, bringing another with it. I fed them both plentifully, and they flew out. In a short time one returned and partook again: after a while the other: so they continued through the day. I did not think of seeing them any more, but I had no sooner taken my accustomed place on my couch the next morning, when in came one of my little visiters, quite tame and quite at home; it ran near me and took a hasty breakfast and ran out. Soon its mate came, and took his in quite as friendly a manner. Thus they continued coming from ten to thirty times a day, and became so much attached to their hostess, that they would seldom take their meal, ever ready on a clean paper by the door, but would run close to my couch and look up to me, to have me drop it to them at my side, which they would take perfectly unconcerned. They appeared for a time quite afraid of strangers, particularly children, and would look to me as they came in, as if to ask is it safe? However, they soon lost their fears of them, and would come in when three or four were present. After a few weeks they began to carry away large pieces every time they came, after satisfying their hunger, which convinced me that they had little ones to feed, and I was astonished to see what a little load they would carry, oftentimes three pieces at once, as large as half a large pea. Thus they continued visiting me for months, until some time in the last of September, just after tea, at the edge of a delightful evening, I heard such a chirping as almost to deafen me. In an instant the little mother appeared, enticing along her little ones, which were almost splitting their little throats with their chattering; and soon the father appeared. They ran up the steps into the room, and stopped just at the door, perfectly still, except the mother, who ran to me very hastily, stopped at my side, looked up in my face, and began to talk, she thought as intelligibly as any person would, conversing with me. I never was more astonished. I supposed that she was asking me to protect her little ones. She stood in this manner a few moments, talking as fast as she could, when she ran back to her children, and they all commenced eating their abundant meal, which had been prepared for them. When finished, they flew out and visited me no more. I was then convinced that the mother was expressing her gratitude, instead of asking protection.*

I mourned the loss of my little family, not expecting ever to see them again; when, how was I delighted, as sitting at my bedroom window one Sunday morning, early in the month of the next June, the dear little creature who first made its appearance, came running up the walk directly to the door. Feeling very ill, and the morning being rainy, I could not go to let it in,—the family being at church—and was obliged to let it go away, which it did very brokenheartedly, after waiting for some time, without giving it a welcome. I reconciled myself, thinking it would return the next day; but I waited for it, and it did not come, and I had entirely given up the idea of seeing it any more; when, how was I overjoyed one morning, to see it fly into the door and run directly to my couch! She stopped directly before me, looked up and began to chipper. I answered her little how-d' ye-do, and gave her some breakfast. She ran out, and soon her mate came. They then continued their visits from ten to forty times a day, sometimes together, sometimes alone—would often stay and run about the room, and appeared delighted when I felt able to answer their prattle. On stormy days, not being able to bear the damp air from an open door, they, when finding it closed, would come to the window and flutter, begging to come in.

I would open the door a little space, just large enough for them to pass through; they would immediately fly on the scraper and crowd through, evidently delighted, and try to show their gratitude. After taking their meals, totally unconcerned at being shut in, they would amuse themselves awhile, then out again on to the scraper, and fly to their nest. Thus they continued their visits to me again for months, quite at home, and for

* What a happy and delightful train of ideas does this opinion call up!—ED.

several of the last weeks, carrying away a large mess every visit, which convinced me they had again a little charge to feed, when one beautiful morning about ten o'clock, oh, such a chirping all of a sudden! and in a moment I had five little visiters on the threshold of the door, the young ones fluttering and chirping so as almost to deafen me, but appearing so happy as hardly to know what to do. I threw down a large mess of crumbs, when the parents instantly ran to me and took them to their just-fledged children, put it in their mouths, and again and again, for some minutes; after being sufficiently fed, all flew out.

Thus they continued to come, at times all together, sometimes one alone, for several days, but generally three or four together, and hardly leaving me alone at all, running around my feet when at the table, and picking up the mites as they fell, and trying to amuse me. In about two weeks they all came at once, after tea, took an abundant meal, ran about and chattered to me, and ran out. I saw the dear little creatures no more. Had any one told me one half what I had witnessed, I should have thought it exaggeration; but myself was their only hostess, and I can in truth attest, that what I have written gives but little idea of the interest they excited. Should they return again the coming summer, as they probably will, I shall give you a further history. In the meantime, believe me,

Most respectfully yours, C. C.

Stratford, Feb. 4th, 1842.

The above mentioned bird is the chipping sparrow, (frinailla socialis of Wilson.) She and her mate have again returned to visit their hostess. If you deem the above worth an insertion in your Daily, it is at your service. It furnishes good evidence of what kindness and gentleness to the feathered race, at the hands of a young lady, can accomplish. J. H. Lindsley.

We look upon a good book on agriculture, as something more than a lucky speculation for the publisher, or a profitable occupation of his time, for the author. It is a gain to the community at large—a new instrument of national wealth. The first honour or praise, in reference to every such instrument, is, no doubt, due to the maker or inventor—but he who brings it into general use, merits also no little approbation. It is to the more general diffusion of sound agricultural literature among our farmers, that we look for that more rapid development of the resources of our varied soils, which the times so imperatively demand.—*Blackwood's Magazine, April*, 1843.

For the Farmers' Cabinet.

Renovation of Soils.

Messrs. Editors,—An observation on this subject, by the late Joseph Cooper, of Camden, New Jersey, is deserving particular regard, as it evinces, I conceive, originality of thought; and is accompanied by the assurance, that the correctness of the theory has been fully borne out by practice. Mr. Cooper says: "Take the most fertile soil, and continue to exhaust it by constant cropping, until it becomes totally unproductive, then lay it down to grass; and although it be never manured or dressed in any way, during its time of rest, yet if it be broken up at the end of a certain number of years, it will be found to have recovered its pristine fruitfulness. On the other hand, take a naturally poor soil, make it rich by manuring and dressing, and lay it down to grass; on breaking up, it will be found to have gone back to its original state of barrenness, having lost, during the time of its undisturbed state, all the enrichment that had been bestowed upon it, without having yielded it in the production of crops."

The nitre, or salt-petre beds of the East Indies, have been regularly worked over and exhausted, by repeated and periodical lixiviation, for ages; and yet the soil is found in the end to have regained the property of again yielding its full and undiminished quantum of salt, which it must have imbibed either from the earth or atmosphere, without the aid of man, or the addition by him, of a particle of matter of any kind. Would your intelligent readers communicate through the pages of the Cabinet, their opinions on this interesting subject, and also, what application can be made of the fact above mentioned? C.

Gloucester co., N. J.

Ancient Custom.—The road which custom had marked out was beaten and smooth, and the farmer continued to travel upon it—it was a *circle* too, and brought him always to the place whence he had started, and he never lost himself. But in travelling in one path and at one pace, we wear out the road and incapacitate ourselves from travelling at any other pace—so, a long course of injudicious management and cropping, not only exhausts the land, but the practice of a science, the cultivation of which requires no exertion of mind, deadens the spirit of inquiry, and leaves the farmer an easy, uninquiring being, knowing nothing from himself, but governed by an hereditary feeling of obedience to ancient usage.—*Hannam.*

For the Farmers' Cabinet.

Lime,—German Professors and Delaware Reviewers.

Messrs. Editors,—I think it would be advisable, before we proceed further with this discussion, to inquire what the matter in dispute is. Some of the anonymous writers on lime, seem to have entirely forgotten it. I expressed the opinion, that much money was wasted, by applying lime to land that did not require it. I undertook to prove this by showing, that some of the best land in Chester county had never been limed. And as the advocates for lime have asserted, that "primitive soils, without organic remains," were those which more particularly required it—I selected such soils in every instance; supposing if *they* required none, the discussion was ended. I neither knew nor cared, whether they contained naturally large quantities of magnesian lime or not—I took their word for it that they did not. How do they undertake to prove that large quantities should be applied? *A Delawarian* quotes whole pages from Professor Leibig, to show that many soils contain naturally of lime and magnesia, from 1147 to 1365 bushels per acre. Would he advise us to lime such a soil? But not satisfied with the *soil*, he goes to the *subsoil*, and informs us, that it contained 5000 bushels per acre. I should like to know how much of the "*crust of the globe*" he calls subsoil. He also informs us, that alluvial lands in Ohio, contain 275 bushels per acre:—would it not be worse than "carrying coals to Mount Carbon," to lime such lands?

He makes a calculation for us, showing that two per cent. gives 350 bushels per acre, which, he says, "is not so small as 50 bushels;" but I think it is certainly smaller than it would be, if any one was simple enough to add the 50 bushels to it. I thought I was in a fair way to save farmers some money, when I pointed them to a farm that had not been limed for one hundred years; but the Professor goes still further, and shows us land that has never had a particle of lime applied for 160 years! This might do, and would be a very good argument on my side, if he had not added, that it had "never been manured or allowed to lie fallow," and yet had produced for the whole 160 years, the most beautiful crops: with this addition I am ashamed to claim it, for fear no practical man would believe even the part that was probable. If Professor Leibig can form such a soil, with as cheap materials as lime and magnesia, I think some of my Valley friends would give him more for the *patent*, than his book would sell for. What a pity the Frenchmen did not send the Professor the *glass-plate* and two inches depth of wheat straw, on which they grew such fine wheat; some of the "common readers" of the Cabinet, would like to know if the straw (soil) contained 1365 bushels, and the glass plate (subsoil) 5000 bushels lime and magnesia per acre. But I cannot understand why *A Delawarian* advises "animal and vegetable manures," in addition to lime; for it seems, the "very fertile soils" in Germany, according to Leibig, have never been manured with any thing.

It is really amusing to hear, with what great confidence every new writer on Agricultural Chemistry speaks—and how confident their followers are, *that they know all about the growth of plants*—and with what complacency they accuse us, with being "far behind the times," if we do not adopt all their views—"far behind the times," is a very significant expression; I once heard it applied to Judge Buel, for saying he did not think *the multicaulis* would answer as far north as New York.

To the artizan, manufacturer, and miner, such works as Leibig's may be valuable; but to convince *A Delawarian* that the Professor does not know as much as some of his readers suppose, he may take all the contents of his laboratory, select soils and subsoils, from all parts of the world, mix them as he pleases, then follow the *isothermal lines* until he finds the most suitable climate; and yet, with all this at his command, he cannot in this country, grow grapes that will make wine or raisins; or beets that will make sugar: although he may bring the cuttings from his native land, and the beet-seed from France: nor can he give a reason for the failure. Yet we find the cane of this country full of saccharine matter; and Mr. Webb has shown, that 1000 pounds of sugar may be made from one acre of corn-stalks.

To be convinced that scientific men know little about the *action of lime*, we have but to compare them with each other—no less than three of the present writers on lime, speak of "soils unfriendly to mineral agency." Now, where will *A Delawarian* find room to embody this in his report? For additional proofs, we have only to refer to your Cabinet, especially the third volume.

Joseph Cloud, Esq., who appears to be a gentleman of as much real knowledge as any of them, thinks magnesia hurtful, and also says, that lime combined with carbonic acid, is rendered more soluble. Sir H. Davy states, that when combined, they are *insoluble;* some tell us lime *decomposes* vegetable fibre. After farmers proved by experiment that this was not the fact, chemists were

compelled to invent another theory, and confess that it *preserved* vegetable fibre. But as common farmers seemed to think vegetable manure must decompose, before it could form a part of new plants, a third theory must be invented, and they are almost as sure they are right this time, as they were twice before. *A Delawarian* now tells us, it only "checks injurious putrefaction—but promotes the healthy decay of vegetable matter, and the excrements of plants contained in the soil." Although at the risk of having my name changed, from *Van-leer* to *Van-dal*, I have another supposition, which is,—that after *magnesian lime* and *multicaulis*, the greatest humbug of the day, is agricultural chemistry. But to continue the comparisons:—

Mr. Lewis acknowledges, that the principal opposition to the *anti-magnesian* doctrine, is found "amongst the farmers of south-eastern Pennsylvania;" and I think it must now be confessed, that farmers in that small portion of the globe, are not *a unit* on the subject. Another writer tells us, that "land in Devonshire, England, is completely ruined by burning—bad cropping—and *over liming*." And "ought not these considerations to admonish" *A Deer Creek Farmer*, "to qualify his publicly expressed opinions, when they are likely to come in conflict with the long established opinions of others?" But the gentleman from Deer creek, is on the right track—experiments are what we want. Mine only apply to primitive soils, far from the ocean,—the sea air may change the very nature of magnesian lime—every poison has its antidote. But when the gentleman mentions "lands in the neighbourhood of Deer creek," that have improved in the most astonishing manner, and in a short time, "by the very means" I have proposed, without lime or magnesia, I hardly know on which side to place him: I would advise "the individuals" he mentions, who have brought ther lands to a state of productiveness not often surpassed, without lime, to let *well enough* alone, until they see some of the "best limed farms" equal their own. But what will *Lancaster County Farmer* say to this? here is poor land, not calcareous, improved without lime;—plaster seemed to keep the clover growing too. Why, Messrs. Editors, if I was unfortunately to step from between them, we should have a second edition of the *Kilkenney cats!*

But to return to the Professor and his transcriber—their whole theory is founded on analysis of soils that had never been limed. Do they certainly know, that magnesian limestone is the same thing after it has passed through the lime-kiln, that it was before? The advocates for powdered limestone were great men in their day, and I thought their arguments quite as reasonable as those the *burnt-lime* men use; but there were no great lime powder manufactories in operation, and they were soon written down, and there we at present leave them. The question farmers now want solved, is not whether lime in its native state, is of benefit, but—is *burnt-lime* of advantage? *A Delawarian* must have a very contemptible opinion of the capacity of your readers, or he would not make such long quotations about every thing but the matter in dispute. It is carbonate of lime and magnesia, not phosphate and sulphate, we are disputing about; if this is kept in view when we read his article, it mostly refutes itself. How does *A Delawarian* know, that "alkaline qualities should pervade all parts of a soil, and that plaster is only needed on the surface?" Has he not told us, that "*plaster retains the ammonia of the soil*, as well as that of the atmosphere?" And when Leibig himself teaches us—this, however, *A Delawarian* does not copy—*that ammonia is the great stimulus to the growth of plants*, so far from perceiving, "why more lime is required than plaster," I see the very contrary—why more plaster should be required than lime. Tell him, if I am "far behind the times" of Leibig and himself, I have no desire to overtake them; I shall have just that much start when they *turn* on their way to plain "common sense." We had better at least wait for the next agricultural work from Germany, before we close up to them; for it appears, a countryman of Leibig, has discovered a process by which grain of all kinds may be grown, without any application of manure to the land before sowing; the mere rolling of the seed in some kind of prepared matter, being sufficient to produce the most luxuriant crops! But I refer my readers to your Cabinet for April, 1843, for the rest of the article. "Ought not these considerations to admonish" *A Delawarian* to be careful how he applies such terms as "far behind the times," to his friends? What becomes of the 6365 bushels per acre, of lime and magnesia, in the soil and subsoil now? In fact, such writers as Leibig, knew just enough to mislead men without practical knowledge; especially such as do not enjoy "the perusal of your publication," and are so little acquainted with the most common terms in use amongst farmers, as not to know what we mean, when we speak of *grass lands that have run out*. If such men find a fertile soil, containing a large quantity of native limestone, they do not ask what else it contains,

—but at once conclude, that is the cause of its fertility; they do not even ask whether the lime decreases in the soil, or remains the same after thousands of crops have been taken from it. Some of their deductions remind me of the man, who seeing that heat *lengthened* bars of iron, and cold *contracted* them, concluded *that* must be the reason why the days were so long in summer, and so short in winter!

But, I must not neglect my friend from *Albern*, N. R. D.; I am sorry for his own sake, he did not reconsider his communication; he ought to know, that proving too much is as bad as proving too little. Is it not strange, that when "lime is universally known to benefit the soil," N. R. D. should have ever thought of making such experiments; and still more strange, that he should continue such satisfactory experiments for eight or ten years, before he convinced himself! I will give one more, made by my friend and neighbour, A. R. M'Ilvain, a gentleman well known in Chester and Delaware counties. He made just the kind of experiment with lime, that N. R. D. reports, *marking* the part limed, and would have carefully noted the difference, if he could have seen any; but after the lapse of several years, he tells me he never could perceive any whatever. It was land that had been worn out, and was never limed—primitive soil too. He further said, he thought if lime was ever beneficial, this was the very land for it to act on. The field is now renovated and well set with grass, but I defy any of the advocates for lime, to show us where their favourite was spread. The experiment satisfied Mr. M'Ilvain, without continuing it for eight or ten years, and I think has saved him some hundreds of dollars.

In addition to this, I have just been informed, that one of the most spirited farmers in Delaware county, Mr. Peters, has been trying experiments with lime for several years, and has come to the conclusion, that it does very little good, if any. But perhaps you may think Mr. M'Ilvain's land is "unfriendly to mineral agency." I do not like to expose them, but if the truth must be told, their theory of "soils unfriendly to mineral agency," was invented for the purpose of throwing dust in the eyes of some practical men, that fortunately for us all, gave lime a fair trial, and found it of little or no value. Before this, the lime burners had been recommending its application to all soils,—heavy clays, loose sand, light alluviums, limestone valleys, primitive hills, and turf meadows.

Here let me request my brother farmers to try experiments for themselves; all that is worth knowing in agriculture, was discovered by practical men. Sir H. Davy acknowledges, that "what is wanted in agriculture, are experiments carefully made;" any one volume of the Cabinet, containing, as it does, such experiments, is worth more to us, than all Professor Leibig and Ure ever wrote. Try lime on one acre; if it does not help that, it will not improve 100 acres; —no class of men can try experiments at so little cost; but beware of the experiments of anonymous writers, "whose conscience doth make cowards of them all." It will not do to trust to the experience of European farmers in all things—the turnip husbandry, which does such wonders there, will not answer here. I have some doubts of the usefulness of the *subsoil plough*, in a country where frost penetrates to the depth of one or two feet; it is at least the antipode of raising grain on *glass-plates*.

But above all, do not trust to the lime-burners' favourite proverb, that "if lime puts a man in jail, it will bring him out again." It seems too much like carrying a heavy sled up a long hill, for the pleasure of riding down. And who knows, but after we were once in jail, "the action of *mineral* agency" might prove as unfavourable to us, as it does to many soils?

In closing, I must congratulate your readers on the happy termination of this long discussion, for we all appear to have arrived at the same point at last. *A Delawarian*, in concluding his article, only *advises* the application of lime and magnesia to soils that do not contain them naturally;—*A Lancaster County Farmer* tells us, that *magnesia*, and of course lime, is one of the primitive earths which form all soils, as well as the crust of the globe. *A Deer Creek Farmer* shows, that the best land in Maryland, has never been limed;—Professor Leibig proves, that land may be farmed 160 years, and produce beautiful crops to the last, without lime. "Again, when we consider the general economy of nature, it is no far-drawn inference to conclude," when we see soils such as the valley of the Nile, which have produced the most luxuriant crops from a period, long prior to the building of the pyramids, or the selling of Joseph into Egypt, without a particle of burnt lime being applied, that many soils do quite as well without it.

If my opponents have given each other some hard knocks, I hope no one is hurt; it was only occasioned by their over anxiety to defend their *stone* deity, which crowded them so near each other, they had not room to use their weapons.

J. W. VANLEER.

P. S. I have just opened the Cabinet for May, in which I see a communication from *A L. C. Farmer*, in which he insinuates, I have given the statement in relation to spreading plaster with the shovel, without a proper regard for truth; I therefore inform him, that I received it from a brother-in-law of one of Mr. Buckley's sons, who stated he received it from a son of Mr. D. Buckley. *L. C. Farmer* has, I have no doubt, been within "long gun-shot" of a great many things which he did not see or hear of. I am pleased to see how completely he refutes *A Delawarian's* statement, that plaster is only needed on the surface. But it is amusing to hear, how he attempts to get out of "the soils unfriendly to mineral agency." Who would have thought he meant a *swamp*, which every one knows is unfriendly to every thing but a ditching shovel. I do not wonder three of them stuck fast in it.

The only apology I can give for the length of this article is, that being a sportsman, I I have always been accustomed to using a large charge of shot, when shooting at a flock. J. W. V.

West Nantmeal, May 17th, 1843.

For the Farmers' Cabinet.

Farmers' Club.

"Little Delaware" has taken the lead in the formation of a class of agricultural meetings, which will, in all probability, soon become general throughout the Union. Twelve gentlemen of Wilmington and its neighbourhood, have constituted themselves a Farmers' Club, who meet on the first Thursday in each month, at the house of the members in rotation, at ten o'clock in the morning, and proceed in the examination of all that pertains to the farm of their host—when his fields, his fences, implements, mode of applying manure, rotation of crops, state of live-stock, house, barn, piggery and poultry yard, are all matters for observation and discussion. At an early hour, a plain, but substantial farmer's dinner is served up, after which, agricultural subjects are discussed, experiments reported, agricultural works and journals exchanged; seeds, plants, new grains, &c., distributed, the entertaining member for the next month, agreed upon;—and the Club adjourns always early, to attend to the business at home before dark. The gentlemen who compose the Club, which is restricted to twelve members, are Messrs. Bryan Jackson, C. P. Holcombe, J. W. Andrews, Jesse Gregg, S. Canby, H. Dupont, J. Boies, J. W. Thomson, F. Sawden, W. Boulden, G. Lodge, and Major J. Carr. From these meetings, politics and political matters are very properly excluded, the business being strictly agricultural.

These Clubs will furnish the finest opportunities for the examination and trial of new and improved implements; in the hands of twelve practical men, who have an interest in the soil, their merits will be carefully tested, and their pretensions—properly appreciated—made known to the country, through their unbiassed judgment. In short, such institutions as these, will take place of the often recommended plan of experimental farms, and the results must be permanently advantageous to the community. A favourable notice from such a body of men, would be the highest recommendation that could be obtained. It is understood that a ploughing match upon the grandest scale, will be got up by the Club, at one of their autumnal meetings, a large and wide field for operations being already secured, with the necessary variety of soils, &c., for a full experiment. May success attend their exertions, and may they have cause to say, at the conclusion of each of their meetings, "It is good for us to be here;" on the principle of that good old proverb, "Iron sharpeneth iron—so doth the countenance of a man, his friend." P.

May 26th, 1843.

Cultivation of the Strawberry.—On the piece of ground intended for planting, I spread a layer of *long* stable manure a foot thick. I trench the ground three feet deep, putting the manure at the bottom of the trench. *Long* manure is then spread on the surface of the trenched ground to the depth of six inches, and afterwards dug in. Beds four feet wide are marked out, with a foot-alley between each—which is highly necessary, to prevent those who gather the fruit, from treading between the plants: and lastly, the runners are planted two feet apart. A bed thus made, will last three years without requiring anything further, not even so much as a top-dressing; but the runners should be removed, and the beds kept free from weeds. As I make my plantations from July to October, the plants come into bearing the following spring—strawberries planted upon ground thus prepared, do not require to be watered even in the hottest weather, because of the depth to which the roots will penetrate. I find that stony growing kinds, such as the British Queen, require a more loamy soil than others. If the planting is deferred until spring, the crop will not be half so large.—*Gardener's Chronicle.*

From the Transactions of the Essex Ag. Society.

On Live Fences.

To the Committee on Live Fences:—

Gentlemen,—In compliance with your request, that I should furnish you with a detailed account of my various experiments in the formation of "live fences," with their results, I have the pleasure to send you the following statement; only premising, that I gave to each plant a fair and impartial trial, and that the information I offer, has at least the value of actual experience.

It is now more than forty years since I became convinced of the superiority, both as regards durability and beauty, of live fences over any other mode of enclosure in use among us, and made it my endeavour to ascertain what plant was best suited to the purpose.

I first tried the English hawthorn, but found it would not bear our climate; the long droughts frequent in our warm summers, materially injure its beauty; it is often blighted, and loses its foliage early in August, and even in the more favourable seasons it assumes a wintry appearance in September: it is disfigured by numerous dead branches, which give it a ragged and unthrifty appearance, even in its verdant season; and is very subject to the attacks of the borer, by which I have known a whole hedge to be destroyed. This first hedge, which measures about twenty rods, is still standing in my orchard, but I have long given it up as incorrigible, and it is not included in the present measurement of my hedges; and a second one with which I had enclosed part of my garden, was only kept from decay by subsequently interposing young buckthorn plants alternately with the hawthorns; by this means it became a good hedge; but had it been *all* of buckthorns, it would have been still better. I am so convinced of the unsuitableness of the English thorn for our climate, that I would not admit another hedge of it into my grounds, if it could be done free of expense. My next experiment was with the triple-thorned acacia. This is a very beautiful plant when grown as an individual tree, but it did not answer my expectations for a hedge; the plants ran up without interlacing, and the thorns being mostly upon the upper branches, the hedge was too open at the bottom to be any protection to the land it enclosed; and it was besides, too feeble a plant to bear our more severe winters.

I made my next trial with the crab-apple, and here I failed entirely: a hedge which I formed of this, had nothing to recommend it in any way.

In the year 1808, I happened to have some young plants which had come up from the chance-scattered seeds of the American buckthorn, or Rhamnus cartharticus, and finding they made a good growth in the nursery to which they had been removed, I determined to try to form a hedge of them, and I have been well pleased with the result. They were set out in 1809, and very soon became a fine hedge of about twenty rods in length, which has remained so until the present time; not a single plant having failed from it, nor have I ever known it to be attacked by any insect. This hedge being my first experiment with the buckthorn, I did not keep it headed down so closely as I have since found it expedient to do, and consequently it is not quite so impervious at the bottom as some of my younger hedges, which have been more severely pruned.

Being fully satisfied that I had at last found the plant I wanted, I have since that time, set out various hedges of it, at different periods, until I can now measure 160 rods of them, all, in my opinion, good hedges,—and I do not hesitate to pronounce the buckthorn the most suitable plant for the purpose, that I have ever met with. It vegetates early in the spring, and retains its verdure late in the autumn. I have often seen it green after the snows had fallen. Being a native plant, it is never injured by our most intense cold, and its vitality is so great, that the young plants may be kept out of the ground for a long time, or transported any distance without injury. It never sends up any suckers, nor is it disfigured by any dead wood; it can be clipped into any shape which the caprice or ingenuity of the gardener may devise; and being pliable, it may be trained into an arch or over a passage way, as easily as a vine; it needs no plashing or interlacing, the natural growth of the plants being sufficiently interwoven. It is never cankered by unskilful clipping, but will bear the knife to any degree. During the last winter, I found one of my hedges had grown too high, casting too much shadow over a portion of my garden, and wishing to try how much it would endure, I directed my gardener to cut it down within four feet of the ground. This was done in mid-winter, and not without some misgivings on my own part, and much discouraging advice from others; but it leafed out as early in the spring as the other hedges, and is now a mass of verdure. I have been applied to for young plants, by persons who have seen and admired my

hedges, and have sent them to various States in the Union, and I have never in any instance, heard of their failure.

I have also tried the experiment with the American hawthorn, or "Yankee thorn," as it is called in this neighbourhood; but this, though a strong and durable hedge, is very far inferior in beauty to the buckthorn—the leaves becoming spotted in August with yellow spots, which give the whole plant a rusty appearance.

My method of forming a hedge, is to set the young plants in a single row, about nine inches apart, either in the spring or autumn; if the latter, I should clip it the following spring within six inches of the ground: this will cause the hedge to be thick at the bottom, which I regard as a great point of excellence: after this, all that remains to be done, is to keep it from weeds, and clip it once a year. I consider June as the best time to trim it, as it soonest recovers its beauty at that season. The clipping may be done either with the garden shears, a hedge knife, or even with a common scythe.

I believe, gentlemen, I have now given you all the information in my power, upon hedges; and I must trust to your interest in the subject, to excuse me, if I have complied too literally with your request, and made a "twice told tale," too long.

I am, with great respect,
Yours, &c., E. Hersey Derby.

Salem, Mass., Sept. 19th, 1842.

We recollect an observation of Dr. Darlington, in his *Flora Cestrica*, the truth of which has been many times confirmed when passing the hedges of our farmers. "One important fact," says the Doctor, "applies to every sort of thorn, and should be remembered by all persons who may undertake hedging,—which is, that if they are not carefully attended to and skilfully managed, the hedges will become a nuisance, and a source of vexation, rather than a benefit, and had better never be attempted. With due care and skill, they make a valuable and ornamental enclosure."—Ed.

For the Farmers' Cabinet.

Decomposition of Rocks.

In a late number of the Cabinet, mention is made of a person who had the resolution to carry abroad and spread over his field, the stones which he had gathered up in the expectation of ridding the land of encumbrance; and the writer accounts for the injury consequent on the removal of the stones, on merely mechanical principles. In the Boston Cultivator, for May 20th, I find an interesting article on the subject, from which I copy a few remarks.

"More than thirty years ago, the Hon. John Welles concluded that rocks in the soil were serviceable to vegetation; that their action was *chemical*, and that they became decomposed. Now, this opinion is fully established and sustained by the leading agriculturists, both in Europe and America. The rains and the carbonic acid in the atmosphere, take from rocks potash or soda, which is carried down by these rains to enrich the soil; and hence, and for other reasons, trees that are transplanted over a cart-load of stones placed in the hole, thrive better than those transplanted without stones; and the soil taken immediately under walls and mixed with a little lime, has been found equal to street manure." And J. Marston, in his lecture on the chemistry of agriculture, says: "It is important to the agriculturist to understand the relation which the carbonic acid of the atmosphere bears to these alkaline silicates, which occur in the mineral and vegetable kingdom: for, insoluble as they are in water, they are slowly decomposed by the united action of the moisture and carbonic acid of the atmosphere, the latter taking the potash or soda from the silica, and forming *carbonates* of these bases. In consequence of this decomposition, the rock disintegrates and crumbles down, while the soluble carbonate is washed down by the rains or mists, and is borne to the lower ground, to enrich the alluvial and other soils, or is carried by the rivers to the sea. And in the farm-yard and the compost-heap, where matters are undergoing decomposition, the silicates they contain undergo similar decompositions; and by similar chemical changes, their silica is rendered soluble, and is thus fitted, when mixed with the soil, again to minister to the wants, and to aid the growth of new races of living vegetables."

Thus it appears, that stones act chemically, as well as mechanically, in the amelioration of the soil; and it is with reason, therefore, that land valuers and surveyors pay particular regard to the nature of the stones of a soil; those that are grown over with mosses and other vegetable substances, indicating the greatest fertility, from the circumstance of their being of a softer texture, more easily operated upon by the carbonic acid of the air and rain, and therefore sooner decomposed. John Dale.

May 26th, 1843.

An insect trap.—Scoop out the inside of a turnip; scollop the edge of the shell, and place it downward on the earth. The insects will pass into it as a place of retreat, through the holes; and the beds of squashes, melons, cucumbers, &c., may thus soon be cleared of them.

THE FARMERS' CABINET,
AND
AMERICAN HERD-BOOK.

PHILADELPHIA, SIXTH MONTH, 1843.

Two months ago, we gave the results of some observations made by different astronomers, upon the COMET which had a short time previously been visible, both here and in Europe. We then stated that "Professor Kendall and S. C. Walker, have computed the elements of this comet with great care, and find they do not agree with those of any one on record: it is therefore, in all probability, to be hailed as a new visitant, within the limits of our system." Subsequent communications made to the public, however, render it probable that this conclusion was prematurely come to. Various paradoxical suggestions have been since thrown out, in relation to the path and perihelion point of this remarkable comet. It was at one time suggested, that this fresh starting point to which it was aiming, was many thousand miles within the body of the sun—that the comet in approaching it, had come in contact with the sun, from which it had rebounded, and was flying off in a path that would not admit of its future return.* This was a bold suggestion, made, as they thought, understandingly, by the indefatigable and able observers, at our High School. It seemed to be sustained by tracing backwards the comet's path, as observed when it was receding from the sun. This idea is now abandoned. Comparing the results of observations made by Professor Bessel, of Konigsberg, Encke, of Berlin, and other European astronomers, with those of our own country, S. C. Walker and E. O. Kendall, of this city, in a communication made to the American Philosophical Society, on the 25th ult., place the perihelion point at an extremely short distance from the sun's surface—they give to the comet an elliptic orbit,—express their conviction, that "it is identical with those of February, 1668, and of December, 1689,"—that it has a period of $21\frac{7}{9}$ years, and will doubtless return "in December, 1864, to be seen under more favourable circumstances than at this visit." Such of our readers then, as shall be here at that time, may have an opportunity of verifying the predictions of our learned townsmen.

* In the United States Gazette, of the 18th ult., we find a communication from our High School Observatory, in which "the gradual shortening of the mean distance from the sun," of Encke's comet, is referred to, and the natural inference drawn, that it is gradually winding itself up—that it must one day—however remote—actually come in contact with the body of the sun—to join its mass—"a drop in the ocean"—or perhaps to rebound, and fly off in another orbit! The communication goes on to state, that the present comet may have approached the great centre of our system in an *elliptic*, or *parabolic* orbit—have come in contact with the permanent portions of the sun's body—then have rebounded, and flown off with its orbit changed to an *hyperbola*. The idea of an elliptic, or even parabolic orbit being changed after contact, to an hyperbolic one, was, we apprehend, hastily adopted. According to the principles and laws of motion, such a result is impossible.

"THE FARMER'S ENCYCLOPÆDIA
AND
DICTIONARY OF RURAL AFFAIRS:

Embracing all the recent discoveries in Agricultural Chemistry, adapted to the comprehension of unscientific readers, by CUTHBERT W. JOHNSON; enlarged, improved and adapted to the United States, by a *Practical Farmer*, assisted by numerous scientific gentlemen, is now in course of publication by Carey & Hart, of this city."

At the close of the sixth number, an extended article on the Dairy is commenced; it is continued and closed in the seventh number, and will be found worthy the perusal of every good farmer, who is desirous of becoming acquainted with the profits and conveniences, and necessities of a Dairy, and who would place within reach of his better half, all the facilities for supplying his board with such butter and cheese, as he would like to invite his friends to help themselves to—such as he would be proud to carry to market, and as the good house-wife would be ambitious to supply.

OUR friends in Delaware and Jersey, are anticipating abundance of peaches. They afford a healthful luxury, which citizens are ever ready to indulge in. We sincerely hope fine crops and good prices may be realized. We gather too, from various parts of the country, that wheat is generally promising pretty fair.

POUDRETTE.

ARRANGEMENTS have been made by the subscriber with D. K. Minor, of New York, for the sale of this valuable manure, as noticed on page 288. It may be obtained at the office of the Farmer's Cabinet, No. 50, North Fourth street, where we expect to keep a supply constantly on hand. Farmers, gardeners, and the truck growers in New Jersey, will now have an opportunity to avail themselves of an article, so much valued in Europe, and in the neighbourhood of New York, where it is manufactured. The price will be two dollars a barrel, where one or two only are taken—for three or more, it will be somewhat reduced.

We learn from the manufacturer, that Poudrette is extensively used in the vicinity of New York, and to good purpose, *as a top-dressing for corn.*

JOSIAH TATUM.

IT is highly gratifying to observe in our market, a general upward tendency in agricultural productions. Wheat, flour, corn, beef, as well as many of the more perishable articles of the farmer, command remunerating prices. Our manufacturers too, are more active than they were. Their goods are finding their way to almost every portion of the globe, where our flag is seen. To China, the British East Indies, and to Asia generally, we are able to hold out inducements for them to become large and increasing customers for our cotton goods. Let each one get out of debt and keep so, and the period of activity and thrift will soon open to us.

German Vegetable Cattle Powder.

This valuable powder, prepared and sold by the subscribers, has been in use for many years, and is highly esteemed by the farmers of Lancaster County, as a preparation upon which full reliance can be placed, for the cure of those diseases to which cattle, sheep and swine are subject.

Farmers, drovers, and all who keep cattle, will find this a superior *Powder*, and none should be without it; it purifies their blood, removes all gross humours, restores lost appetite, and when cattle are oppressed by heat, fatigue, or from other causes, a few doses will generally restore them to health again; and it is confidently recommended as a certain and sure cure, for that dangerous and often fatal disease, the *horn-ail*. By its salutary influence upon their system, it greatly improves the general appearance and condition of cattle, sheep and swine, and increases the quantity of milk in cows.

J. F. HEINITSH & SON'S

Medicinal, Drug and Chemical Store, East King street, Lancaster, Pa.—Put up in packages of twenty ounces, price 50 cents. For sale also by Peter Lehman, No. 320, Market street, between Ninth and Tenth, Philad.; and R. W. Walker, Parksburg, Chester county, Pa.

The Biblical Cabinet.

James M. Campbell & Co., No. 98, Chesnut Street, propose to publish a periodical under the above title, to contain valuable and costly treatises on theological subjects, which are now—owing to their very high price—beyond the reach of any but the wealthy. It will be their endeavour to give no works but those of the highest character, and such as shall be free from the charge of Protestant sectarianism.

The first book will be *Neander's History of the Christian Religion*, during the first three centuries;—translated from the German, by Henry John Rose, B.D. This work has never been republished in the United States, and is very scarce. It will be completed in about five numbers; at twenty-five cents each. For the pleasure of looking over the first two numbers, we are indebted to the courtesy of the publishers. They contain 96 pages each, and are neatly executed. They may be obtained at 98 Chesnut street, or at this office.

SHORT ADVERTISEMENTS,

The subject matter of which, may correspond with the agricultural character of this paper, will be inserted at the rate of one dollar for each insertion of ten lines or less; and so in proportion for each additional line. The money to be paid in advance.

The quantity of rain which fell during the Fifth month, (May,) 1843, was a little more than two inches. ..... 2.045 inches.

Pennsylvania Hospital, Sixth mo. 1st, 1843.

Many of our exchange papers, from different parts of the country, say this is to be the *Locust* year.

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Terms.—One dollar per annum, or five dollars for seven copies—*payable in advance.*

All subscriptions must commence at the *beginning* of a volume. Having lately struck off a new edition of one or two of the former numbers, which had become exhausted, we are now able to supply, to a limited extent, any of the back volumes. They may be had at one dollar each, in numbers, or one dollar twenty-five cents half-bound and lettered.

For seven dollars paid in advance, a *complete set* of the work will be furnished; including the first six volumes *half bound*, and the seventh volume in *numbers.* Copies returned to the office of publication will be neatly half bound and lettered at twenty-five cents per volume.

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From the Steam-Press of the late Proprietors and Publishers.